

**CITY OF PETALUMA
PETALUMA, CALIFORNIA**

CONTRACT DOCUMENTS FOR

**STREET REHABILITATION
MARIA DRIVE C16102248**

**RECYCLED WATER EXTENSION
MARIA DRIVE C66501834**

VOLUME 1 OF 2

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

CITY OF PETALUMA - SONOMA COUNTY - CALIFORNIA

1858

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: Ken Eichstaedt, P.E., T.E.

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

**Bid Issuance: September 28, 2023
Bid Opening: October 19, 2023**

CITY OF PETALUMA
PETALUMA, CALIFORNIA

**STREET REHABILITATION
MARIA DRIVE C16102248**

**RECYCLED WATER EXTENSION
MARIA DRIVE C66501834**

CITY OF PETALUMA - SONOMA COUNTY - CALIFORNIA

Prepared by:



Becky Dower, P.E

9/26/2023

Date

Reviewed by:

Ken Eichstaedt, P.E., T.E.

9/28/23

Date



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NOTICE INVITING BIDS

1. **RECEIPT OF BIDS:** Sealed Bids will be received at the office of the City Clerk of the City of Petaluma located at 11 English Street, Room 4, Petaluma, California, 94952-2610, until 1:00 PM (enter time) on October 19, 2023, for the Street Rehabilitation Maria Drive (C16102248) & Recycled Water Extension Maria Drive (C66501834). 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 1:00 PM (enter time) on October 19, 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 within 90 working days after the commencement date stated in the Notice to Proceed.
4. **DESCRIPTION OF WORK:** The WORK includes the extension of the recycled waterline, full-depth pavement replacement, sidewalk and curb ramp accessibility upgrades, and transportation and striping improvements.
5. **SITE OF WORK:** The site of the WORK is located on Maria Drive from Rainier Ave intersection to South McDowell Intersection, Petaluma, CA.
6. **OBTAINING CONTRACT DOCUMENTS:** The Contract Documents are entitled ““Street Rehabilitation Maria Drive (C16102248) & Recycled Water Extension Maria Drive (C66501834).””

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

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

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

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

If you would like to purchase bid documents, please call Phone No. (707) 778-4585 , Attention: Tiffany Avila, upon payment of \$50 (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 _____.

7. **BID SECURITY:** Each Bid shall be accompanied by a certified or cashier's check or Bid Bond executed by an admitted surety in the amount of 10% percent of the Total Bid Price payable to the City of Petaluma as a guarantee that the Bidder, if its Bid is accepted, will promptly execute the Agreement. A Bid shall not be considered unless one of the forms of Bidder's security is enclosed with it. Upon acceptance of the Bid, if the Bidder refuses to or fails to promptly execute the Agreement the Bidder's security shall be forfeited to the CITY.
8. **CONTRACTOR'S LICENSE CLASSIFICATION:** In accordance with the provisions of California Public Contract Code Section 3300, the CITY has determined that the CONTRACTOR shall possess a valid Class A 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 exemption.
9. **PREFERENCE FOR MATERIAL:** Substitute products will be considered prior to award of the Contract in accordance with Section 3400 of the California Public Contract Code. The Bidder will submit data substantiating its request for a substitution of "an equal" item within 14 days following submission of its Bid. Substantiation date will conform to the requirements of the instructions for Proposed Substitutions of "or equal" items contained in the bid Forms. The ENGINEER will make a determination of approval 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.
10. **REJECTION OF PROPOSALS:** The CITY reserves the right to reject all or any part of all bids submitted, waive informalities and irregularities, and will not, to the extent allowed by law, be bound to accept the lowest bid.
11. **BIDS TO REMAIN OPEN:** The Bidder shall guarantee the total bid price for a period of 90 calendar days from the date of bid opening.
12. **CALIFORNIA WAGE RATE REQUIREMENTS:** In accordance with the provisions of California Labor Code Sections 1770, 1773, 1773.1, and 1773.7 as amended, the Director of the Department of Industrial Relations has determined the general prevailing rate of per diem wages in accordance with 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. 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.
13. **LABOR COMPLIANCE PURSUANT TO CALIFORNIA LABOR CODE §1771.1:** A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirement of Section 4104 of the Public Contract Code or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for 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 expenses incurred by the escrow agent in administering the escrow account and all expenses of the CITY. These expenses and payment terms shall be determined by the CITY's Finance Director or his/her designee and the escrow agent. Upon satisfactory completion of the WORK, the CONTRACTOR shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the CITY, pursuant to the terms of Section 22300 of the Public Contract Code. Such securities, if deposited by the CONTRACTOR, shall be valued by the CITY, whose decision on valuation of the securities shall be final. Securities eligible for investment under this provision shall be limited to those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the CONTRACTOR and the CITY.

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

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

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

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

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

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

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

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

NAME: Ken Eichstaedt, P.E., T.E.

ADDRESS: 202 N McDowell Blvd

Petaluma, CA

94954

PHONE: (707) 776-3672

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

CITY: Petaluma

BY: Kami Naniaga

DATE: Sept 28, 2023

END OF NOTICE INVITING BIDS

INSTRUCTIONS TO BIDDERS

1. **DEFINED TERMS.** Terms used in these Instructions to Bidders and the Notice Inviting Bids which are defined in the General Conditions have the meanings assigned to them in the General Conditions. The term “Bidder” means one who submits a Bid directly to CITY, as distinct from a sub-bidder, who submits a price or quote to a Bidder.
2. **LOCAL BUSINESS LICENSE.** All CONTRACTORS, including subcontractors, not already having a local business license for the work contemplated, will be required to secure the appropriate license before a Contract can be executed.
3. **INTERPRETATIONS AND ADDENDA.**
 - 3.1 All questions about the meaning or intent of the Contract Documents are to be directed to the ENGINEER. Additions, deletions, or revisions to the Contract Documents considered necessary by the ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by the ENGINEER as having received the Contract Documents. Questions received less than 14 days prior to the date of Bids may not be answered. Only answers to such questions issued by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
 - 3.2 Addenda may also be issued to make other additions, deletions, or revisions to the Contract Documents.
 - 3.3 Bidders shall make no special interpretation or inference of intent from differing formats in the Technical Specifications.
4. **BIDDER’S EXAMINATION OF CONTRACT DOCUMENTS AND SITE.**
 - 4.1 It is the responsibility of each Bidder before submitting a Bid:
 - A. To examine thoroughly the Contract Documents and other related data identified in the Bidding Documents (including “technical” data referred to below);
 - B. To visit the site to become familiar with local conditions that may affect cost, progress, or performance of the WORK;
 - C. To consider federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the WORK;
 - D. To study and carefully correlate the Bidder’s observations with the Contract Documents; and

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

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

- A. Those reports of explorations and tests of subsurface conditions at the site which have been utilized by the ENGINEER in the preparation of the Contract Documents.
- B. Those drawings of physical conditions in or relating to existing surface and subsurface conditions (except Underground Utilities) which are at or contiguous to the site which have been utilized by the ENGINEER in the preparation of the Contract Documents.
- C. Those environmental reports or drawings relating to Asbestos, Hazardous Waste, PCBs, Petroleum, and/or Radioactive Materials identified at the site which have been utilized by the ENGINEER in the preparation of the Contract Documents.
- D. The ENGINEER makes 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

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 A 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

RECYCLED WATER MAIN EXTENSION - PROJECT A (C66501834)

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization / Demobilization	1	LS		
2	Temporary Traffic Control	1	LS		
3	Storm Water Management and Erosion Control	1	LS		
4	Pothole	1	LS		
5	Trench Shoring and Bracing	1	LS		
6	Recycled Water Fire Hydrant Assembly	1	EA		
7	2" Recycled Water Service	7	EA		
8	4" Recycled Water Main	40	LF		
9	6" Recycled Water Main	45	LF		
10	8" Recycled Water Main	178	LF		
11	12" Recycled Water Main	2,255	LF		
12	4" Gate Valve	1	EA		
13	6" Gate Valve	2	EA		
14	8" Gate Valve	2	EA		
15	12" Gate Valve	7	EA		
16	6" Blowoff Assembly	1	EA		
17	Recycled Water Main Drop/Raise	4	EA		
18	Box Culver Over-Crossing	1	LS		

Total Project A \$ _____

PAVEMENT RESTORATION MARIA DRIVE - PROJECT B (16102248)

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization/ Demobilization	1	LS		
2	Temporary Traffic Control	1	LS		
3	Storm Water Management and Erosion Control	1	LS		
4	Minor Concrete, Curb and Gutter	2,990	LF		
5	Minor Concrete, Driveways	735	SF		
6	Minor Concrete, Sidewalk	13,700	SF		
7	Minor Concrete, Valley Gutter	1,370	SF		
8	Minor Concrete, Vertical Curb	355	LF		
9	Minor Concrete, Bus Pad	1,765	SF		
10	Case A Curb Ramp	29	EA		
11	Modified Case A Curb Ramp	2	EA		
12	Case C Curb Ramp	11	EA		
13	Modified Case C Curb Ramp	2	EA		
14	Sidewalk Conform Grinding	100	SF		
15	Deep Lift AC	65	Ton		
16	2" AC Overlay	35	Ton		
17	4.2" AC Overlay	6,525	Ton		
18	Cold Planing	27,925	SY		
19	Full Depth Reclamation-Cement (1.17' depth)	12,050	SY		
20	Full Depth Reclamation-Cement/Lime (1.17' depth)	15,550	SY		
21	Mix Designs (FDR-C and FDR-C/L)	1	LS		
22	Cement (Full Depth Reclamation)	530	Ton		
23	Lime (Full Depth Reclamation)	250	Ton		
24	Tree and Stump Removal	1	EA		
25	Remove and Reinstall Existing Sign	2	EA		
26	Remove and Reinstall Existing Sign and Post in New Foundation	16	EA		
27	Install New Post and Foundation	32	EA		
28	Install New Sign	53	ES		
29	6" Double Yellow Stripe (Detail 22)	5,392	LF		
30	6" Double Yellow Stripe Median (Detail 29)	330	LF		
31	6" Yellow Stripe Buffer	290	LF		
32	6" White Stripe (Detail 27B, 39, 39A)	13,072	LF		
33	6" White Stripe Buffer	925	LF		
34	8" White Stripe (Painted Bulb-outs, Detail 38)	1,405	LF		
35	Pavement Markings, Thermoplastic	13,974	SF		
36	Pavement Color Treatment, Methyl Methacrylate	11,560	SF		
37	Blue Pavement Marker	8	EA		
38	Mountable Rubber Curbs	8	EA		
39	K-71 Traffic Posts	52	EA		
40	Curb Paint, Red	3,095	LF		
41	Curb Paint, White	24	LF		
42	Solar RRFB System (Single Sided: Solar Panel, Light Bar, Battery, Controller, APS, and Warning Signs)	2	EA		

Street Rehabilitation and Recycled Water Main Maria Drive Project
City Project No. C16102248/C66501834

43	Solar RRFB System (Double Sided: Solar Panel, Light Bar, Battery, Controller, APS, and Warning Signs)	10	EA		
44	3" Diameter Post & Foundation	5	EA		
45	Solar Street Light System (Luminaire, Solar Panel, and Battery)	3	EA		
46	Type 15 Street Light Pole, Foundation, & No. 3.5 Pull Box	6	EA		
47	Connect to Existing Street Light Service	3	EA		
48	Traffic Signal System, S. McDowell Blvd & Maria Drive	1	LS		
49	Adjust Existing Utility Box to Grade	13	EA		
50	Adjust Water Valve	58	EA		
51	Adjust Manhole	19	EA		
52	Adjust Monument	14	EA		
53	12" Storm Drain Pipe	25	LF		
54	24" Storm Drain Pipe	12	LF		
55	Convert Catch Basin to SDMH	2	EA		
56	Type B Catch Basin	4	EA		
57	Fire Hydrant Relocation	2	EA		

Total Project B \$ _____

\$ _____
Total Base Bid (Project A + Project B) _____

ADDITIVE ALTERNATIVE 1 - LANDSCAPING

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Planting Soil and Tree Planting	1	LS		

Total Alt 1 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 Bid of Project A +B.

Address of Bidder

Signature of Bidder

City

Name of Bidder (Print)

Telephone Number of Bidder

Fax Number of Bidder

Contractor's License Number

License's Expiration Date

Addendum Acknowledgement

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

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

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

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

LIST OF SUBCONTRACTORS

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

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

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

END OF LIST OF SUBCONTRACTORS

LIST OF MATERIAL SUPPLIERS AND MATERIAL GUARANTEE

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

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

Item	Supplier & Manufacturer	Address
RRFB		
PPB		

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

**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

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. 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.

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

BID BOND

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

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

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

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

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

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

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

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

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

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

Petroleum - Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

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

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

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

Samples - Physical examples of materials, equipment, or workmanship that are representative of some portion of the WORK and which establish the standards by which such portion of the WORK will be judged.

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

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

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

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

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

Subcontractor - An individual, partnership, corporation, joint-venture, or other legal entity having a direct contract with the CONTRACTOR or with any other subcontractor for the performance of a part of the WORK at the Site.

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

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

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

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

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

ARTICLE 2 – PRELIMINARY MATTERS

2.1 DELIVERY OF BONDS AND INSURANCE CERTIFICATES

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

2.2 COPIES OF DOCUMENTS

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

2.3 COMMENCEMENT OF CONTRACT TIMES; NOTICE TO PROCEED

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

2.4 STARTING THE WORK

- A. The CONTRACTOR shall begin to perform the WORK on the commencement date stated in the Notice to Proceed, but no work shall be done at the Site prior to said commencement date.
- B. Before undertaking each part of the WORK, the CONTRACTOR shall review the Contract Documents in accordance with Paragraph 3.3.

2.5 PRECONSTRUCTION CONFERENCE

- A. The CONTRACTOR is required to attend a preconstruction conference. This conference will be attended by the CITY, ENGINEER, and others as appropriate in order to discuss the WORK.
- B. The CONTRACTOR's initial schedule submittals for shop drawings, obtaining permits, and Plan of Operation and CPM Schedule will be reviewed and finalized. At a minimum, the CONTRACTOR's representatives shall include its project manager, project superintendent and schedule expert. If the submittals are not finalized at the end of the meeting, additional meetings will be held so that the submittals can be finalized prior to the submittal of the first Application for Payment. No Application for Payment will be processed prior to receiving acceptable initial submittals from the CONTRACTOR.

ARTICLE 3 – INTENT AND USE OF CONTRACT DOCUMENTS

3.1 INTENT

- A. The Contract Documents comprise the entire agreement between the CITY and the CONTRACTOR concerning the WORK. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the State of California.
- B. It is the intent of the Contract Documents to describe the WORK, functionally complete, to be constructed in accordance with the Contract Documents. Any

labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not called for specifically.

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

3.2 REFERENCE TO STANDARDS

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

3.3 REVIEW OF CONTRACT DOCUMENTS

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

3.4 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS

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

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

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

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

3.5 AMENDING CONTRACT DOCUMENTS

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the WORK or to modify the terms and conditions thereof by a Change Order (pursuant to Article 10).

3.6 REUSE OF DOCUMENTS

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

ARTICLE 4 – SITE OF THE WORK

4.1 AVAILABILITY OF LANDS

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

4.2 REPORTS OF PHYSICAL CONDITIONS

- A. **Subsurface Explorations:** Reference is made to any Supplementary General Conditions for identification of those reports of explorations and tests of subsurface conditions at the Site that have been utilized by the ENGINEER in the preparation of the Contract Documents.
- B. **Existing Structures:** Reference is made to any Supplementary General Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except underground Utilities referred to in Paragraph 4.3 herein) which are at or contiguous to the Site that have been utilized in the preparation of the Contract Documents.
- C. The CITY makes no representation as to the completeness of the reports or drawings referred to in Paragraph 4.2 A or B above or the accuracy of any data or information contained therein. The CONTRACTOR may rely upon the accuracy of the technical data contained in such reports and drawings. However, the CONTRACTOR may not rely upon any interpretation of such technical data, including any interpolation or extrapolation thereof, or any non-technical data, interpretations, and opinions contained therein.

4.3 PHYSICAL CONDITIONS - UNDERGROUND UTILITIES

- A. **Indicated:** The information and data indicated in the Contract Documents with respect to existing underground Utilities at or contiguous to the Site are based on information and data furnished to the CITY or the ENGINEER by the owners of such underground Utilities or by others. Unless it is expressly provided in any Supplementary General Conditions the CITY will not be responsible for the accuracy or completeness of any such information or data, and the CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all underground Utilities indicated in the Contract Documents, for coordination of the WORK with the owners of such underground Utilities during construction, for the safety and protection thereof and repairing any damage thereto resulting from the WORK, the cost of all of which are deemed to have been included in the Contract Price.
- B. **Not Indicated:** If an underground Utility is uncovered or revealed at or contiguous to the Site which was not indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall identify the owner of such underground Utility and give written notice thereof to that owner and shall notify the ENGINEER.

4.4 DIFFERING SITE CONDITIONS

- A. The CONTRACTOR shall notify the ENGINEER, in writing, of the following unforeseen conditions, hereinafter called differing Site conditions, promptly upon their discovery (but in no event later than 14 days after their discovery) and before they are disturbed:
 - 1. Subsurface or latent physical conditions at the Site of the WORK differing materially from those indicated, described, or delineated in the Contract Documents, including those reports discussed in Paragraph 4.2, 4.3, and 4.5.
- B. The ENGINEER will review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto.
- C. If the ENGINEER concludes that because of newly discovered conditions a change in the Contract Documents is required, a Change Order will be issued as provided in Article 10 to reflect and document the consequences of the difference.
- D. In each such case, an increase or decrease in the Contract Price or an extension or shortening the Contract Times, or any combination thereof, will be allowable to the extent that they are attributable to any such difference. If the ENGINEER and the CONTRACTOR are unable to agree as to the amount or length thereof, a claim may be made therefor as provided in Articles 11 and 12.

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

4.5 HAZARDOUS MATERIALS

- A. CITY shall be responsible for any Asbestos, Hazardous Waste, Petroleum, or Radioactive Material uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the WORK and which may present a substantial danger to persons or property exposed thereto in connection with the WORK at the Site. CITY will not be responsible for any such material brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.
 - 1. Upon discovery of any Asbestos, Hazardous Waste, Petroleum, or Radioactive Material, the CONTRACTOR shall immediately stop all work in any area affected thereby (except in an emergency as required by Paragraph 6.13) and notify ENGINEER (and therefore confirm such notice in writing). CONTRACTOR shall not be required to resume any work in any such affected area until after CITY has obtained any required permits related thereto and delivered to CONTRACTOR special written notice. Such written notice will specify that such condition and any affected area is or has been rendered safe for the resumption of the work or specify any special conditions under which the work may be resumed safely. If ENGINEER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of adjustment, if any, in Contract Price or Contract Times as a result of such work stoppage or such special conditions under which work is agreed by CONTRACTOR to be resumed, either party may make a claim therefor as provided in Articles 11 and 12.
 - 2. If, after receipt of such special written notice, CONTRACTOR does not agree to resume such WORK based on a reasonable belief it is unsafe, or does not agree to resume such WORK under special conditions, ENGINEER may order such portion of the WORK that is in connection with such hazardous condition or in such affected area to be deleted from the WORK. If ENGINEER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of the WORK then either party may make a claim therefor as provided in Articles 11 and 12. CITY may have such deleted portion of the WORK performed by CITY's own forces or others in accordance with Article 7.
- B. The provisions of Paragraphs 4.2, 4.3, and 4.4 are not intended to apply to Asbestos, Petroleum, Hazardous Waste, or Radioactive Material uncovered or revealed at the Site.

4.6 REFERENCE POINTS

- A. The ENGINEER will provide the location and elevation of one bench mark, near or on the Site of the WORK, for use by the CONTRACTOR for alignment and elevation control. Unless otherwise specified in any Supplementary General Conditions, the CONTRACTOR shall furnish all other lines, grades, and bench marks required for proper execution of the WORK.
- B. The CONTRACTOR shall preserve or replace any and all bench marks, section corners, witness corners, stakes, and other survey marks, and in case of their removal or destruction by any party, the CONTRACTOR shall be responsible for the accurate replacement of such reference points by surveyor licensed under the applicable state codes governing land surveyors.

ARTICLE 5 – BONDS AND INSURANCE

5.1 BONDS

- A. The CONTRACTOR shall furnish Performance and Labor and Materials Bonds, each in the amount of one hundred percent (100%) of the contract price, as security for the faithful performance and payment of all the CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date of completion, except as otherwise provided by Law or Regulation or by the Contract Documents. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions.
- B. The CONTRACTOR shall guarantee the WORK to be free of defects in material and workmanship for a period of one (1) year following the CITY's acceptance of the WORK. The CONTRACTOR shall agree to make, at the CONTRACTOR's own expense, any repairs or replacements made necessary by defects in material or workmanship which become evident within the one-year guarantee period. The CONTRACTOR's guarantee against defects required by this provision shall be secured by a Maintenance Bond, in the amount of ten percent (10%) of the contract price, which shall be delivered by the CONTRACTOR to the CITY prior to acceptance of the WORK. The Maintenance Bond shall remain in force for one (1) year from the date of acceptance of the contracted WORK. The CONTRACTOR shall make all repairs and replacements within the time required during the guarantee period upon receipt of written order from the ENGINEER. If the CONTRACTOR fails to make the repairs and replacements within the required time, the CITY may do the work and the CONTRACTOR and the CONTRACTOR's surety for the Maintenance Bond shall be liable to the CITY for the cost. The expiration of the Maintenance Bond during the one-year guarantee period does not operate to waive or void the one-year guarantee, as set forth herein and in paragraph 6.16 of these General Conditions.

- C. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of “Companies Holding Certificates of Authority as Acceptable Sureties on Federal bonds and as Acceptable Reinsuring Companies” as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent’s authority to act.
- D. If the surety on any Bond furnished by the CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the WORK is located, the CONTRACTOR shall within 7 days thereafter substitute another Bond and surety, which must be acceptable to the CITY.
- E. All Bonds required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety companies that are duly licensed or authorized in the State of California to issue Bonds for the limits so required. Such surety companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.

5.2 INSURANCE

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

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

A. Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. Insurance Services Office Commercial General Liability coverage.
2. Insurance Services Office form number CA covering Automobile Liability, code 1 (any auto).
3. Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance.

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 affect 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 50 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 discovery and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the claim has been submitted. The right to audit shall include the right to inspect the CONTRACTOR's plant or such parts thereof, as may be or have been engaged in the performance of the WORK. The CONTRACTOR further agrees that the right to audit encompasses

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

16.4 SURVIVAL OF OBLIGATIONS

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

16.5 CONTROLLING LAW

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

16.6 SEVERABILITY

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

16.7 WAIVER

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

ARTICLE 17 – CALIFORNIA STATE REQUIREMENTS

17.1 STATE WAGE DETERMINATIONS

- A. As required by Section 1770 and following, of the California Labor Code, the CONTRACTOR shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Copies of such prevailing rate of per diem wages available file at the office of the City Clerk, which copies shall be made available to any interested party on request. The CONTRACTOR shall post a copy of such determination at each job site.
- B. In accordance with Section 1775 of the California Labor Code, the CONTRACTOR shall, as a penalty to the CITY, forfeit not more than **\$200.00** for each calendar day or portion thereof, for each worker paid less than the prevailing rates as determined by the Director for the work or craft in which the worker is employed for any public work done under the contract by him or her or by any subcontractor under him or her.

17.2 WORKERS' COMPENSATION

- A. In accordance with the provisions of Section 3700 of the California Labor Code, the CONTRACTOR shall secure the payment of compensation to its employees.
- B. Prior to beginning work under the Contract, the CONTRACTOR shall sign and file with the ENGINEER the following certification:

“I am aware of the provisions of Section 3700 of the Labor Code, which require every employer to be insured against liability for workers’ compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the WORK of this Contract.”
- C. Notwithstanding the foregoing provisions, before the Contract is executed on behalf of the CITY, a bidder to whom a contract has been awarded shall furnish satisfactory evidence that it has secured in the manner required and provided by law the payment of workers’ compensation.

17.3 APPRENTICES ON PUBLIC WORKS

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

17.4 WORKING HOURS

- A. The CONTRACTOR shall comply with all applicable provisions of Section 1810 to 1815, inclusive, of the California Labor Code relating to working hours. The CONTRACTOR shall, as a penalty to the CITY, forfeit \$25.00 for each worker employed in the execution of the Contract by the CONTRACTOR or by any subcontractor for each calendar day during which such worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week, unless such worker receives compensation for all hours worked in excess of 8 hours at not less than 1-1/2 times the basic rate of pay.

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

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

17.6 NOTICE OF COMPLETION

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

17.7 UNPAID CLAIMS

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

17.8 RETAINAGE FROM MONTHLY PAYMENTS

- A. Pursuant to Section 22300 of the California Public Contract Code, the CONTRACTOR may substitute securities for any money withheld by the CITY to insure performance under the Contract. At the request and expense of the CONTRACTOR, securities equivalent to the amount withheld shall be deposited with the CITY or with a state or federally chartered bank in California as to the escrow agent, who shall return such securities to the CONTRACTOR upon satisfactory completion of the Contract.
- B. Alternatively, the CONTRACTOR may request and the CITY shall make payment of retentions earned directly to the escrow agent at the expense of the CONTRACTOR. At the expense of the CONTRACTOR, the CONTRACTOR may direct the investment of the payments into securities and the CONTRACTOR shall receive the interest earned on the investments upon the same terms provided in Section 22300 of the Public Contract Code securities deposited by the CONTRACTOR. The CONTRACTOR shall be responsible for paying all fees for the expenses incurred by the escrow agent in administering the escrow account and all expenses of the CITY. These expenses and payment terms shall be determined by the CITY's Finance Director or his/her designee and the escrow agent. Upon satisfactory completion of the Contract, the CONTRACTOR shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the CITY, pursuant to the terms of Section 22300 of the Public Contract Code. The CONTRACTOR shall pay to each subcontractor, not later than 20 days of receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to insure the performance of the CONTRACTOR.
- C. Securities eligible for investment under Section 22300 shall be limited to those listed in Section 16430 of the Government Code and to bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the CONTRACTOR and the CITY.

17.9 PUBLIC WORKS CONTRACTS; ASSIGNMENT TO AWARDING BODY

- A. In accordance with Section 7103.5 of the California Public Contract Code, the CONTRACTOR and Subcontractors shall conform to the following requirements. In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the CONTRACTOR or subcontractor offers and agrees to assign to the CITY all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising

from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the CONTRACTOR, without further acknowledgment by the parties.

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

- A. In accordance with Section 1776 of the California Labor Code the CONTRACTOR and each Subcontractor shall keep an accurate payroll record, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by him or her in connection with the public work. Each payroll record shall contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:
1. The information contained in the payroll record is true and correct.
 2. The employer has complied with the requirements of Sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.
- B. The payroll records shall be certified and shall be available for inspection at all reasonable hours at the principal office of the CONTRACTOR on the following basis:
1. A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request as well as submitted electronically online to the Department of Industrial Relations Labor Commissioner: <https://apps.dir.ca.gov/ecpr/DAS/AltLogin>.
 2. A certified copy of all payroll records shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.
 3. A certified copy of all payroll records shall be made available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the

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

- C. The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the division.
- D. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of the CONTRACTOR awarded the contract or performing the contract shall not be marked or obliterated.
- E. The CONTRACTOR shall inform the ENGINEER of the location of the records including the street address, city and county, and shall, within 5 working days, provide a notice of change of location and address.
- F. The CONTRACTOR shall have 10 days in which to comply subsequent to receipt of written notice specifying in what respects the CONTRACTOR must comply with this Section. In the event that the CONTRACTOR fails to comply within the 10-day period, he or she shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars (\$25.00) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due. A contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section.

17.11 CULTURAL RESOURCES

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

17.12 PROTECTION OF WORKERS IN TRENCH EXCAVATIONS

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

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

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

17.13 CONCRETE FORMS, FALSEWORK, AND SHORING

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

17.14 REMOVAL, RELOCATION, OR PROTECTION OF EXISTING UTILITIES

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

- C. Nothing herein shall be deemed to require the public agency to indicate the presence of existing service laterals or appurtenances when the presence of such utilities on the site of the construction project can be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of construction; provided however, nothing herein shall relieve the public agency from identifying main or trunklines in the plans and specifications.
- D. If the CONTRACTOR while performing the Contract discovers utility facilities not identified by the public agency in the Contract Documents it shall immediately notify the public agency and utility in writing.
- E. The public utility, where they are the owner, shall have the sole discretion to perform such repairs or relocation work or permit the CONTRACTOR to do such repairs or relocation work at a reasonable price.

17.15 CONTRACTOR LICENSE REQUIREMENTS

- A. In accordance with Section 7028.15 of the California Business and Professions Code:
- B. It is a misdemeanor for any person to submit a bid to a public agency in order to engage in the business or act in the capacity of a contractor within this state without having a license therefor, except in any of the following cases:
 - 1. The person is particularly exempted from this chapter.
 - 2. The bid is submitted on a state project governed by Section 10164 of the Public Contract Code or any local agency project governed by Section 20103.5 of the Public Contract Code.
- C. If a person has previously been convicted of the offense described in this section, the court shall impose a fine of 20 percent of the price of the contract under which the unlicensed person performed contract work, or four thousand five hundred dollars (\$4,500), whichever is greater, or imprisonment in the county jail for not less than 10 days nor more than six months, or both.
- D. In the event the person performing the contracting work has agreed to furnish materials and labor on an hourly basis, “the price of the contract” for the purpose of this subdivision means the aggregate sum of the cost of materials and labor furnished and the cost of completing the work to be performed.
- E. This section shall not apply to a joint venture license, as required by Section 7029.1 of the California Business and Professions Code. However, at the time of making a bid as a joint venture, each person submitting the bid shall be subject to this section with respect to his or her individual licensure.

- F. This section shall not affect the right or ability of a licensed architect, land surveyor, or registered professional engineer to form joint ventures with licensed contractors to render services within the scope of their respective practices.
- G. Unless one of the foregoing exceptions applies, a bid submitted to a public agency by a contractor who is not licensed in accordance with this chapter shall be considered nonresponsive and shall be rejected by the public agency. Unless one of the foregoing exceptions applies, a local public agency shall, before awarding a contract or issuing a purchase order, verify that the contractor was properly licensed when the contractor submitted the bid. Notwithstanding any other provision of law, unless one of the foregoing exceptions applies, the registrar may issue a citation to any public officer or employee of a public entity who knowingly awards a contract or issues a purchase order to a contractor who is not licensed pursuant to this chapter. The amount of civil penalties, appeal, and finality of such citations shall be subject to Sections 7028.7 and 7028.13 inclusive of the California Business and Professions Code. Any contract awarded to, or any purchase order issued to, a contractor who is not licensed pursuant to this chapter is void.
- H. Any compliance or noncompliance with subdivision (G) of this paragraph shall not invalidate any contract or bid awarded by a public agency during which time that subdivision was in effect.
- I. A public employee or officer shall not be subject to a citation pursuant to this section if the public employee, officer, or employing agency 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 PROVISION

SECTION III.

SPECIAL PROVISIONS

- 3-1. DESCRIPTION OF WORK – The work includes the installation of a recycled water line and appurtenances (to Monroe St.), full-depth replacement of pavement, sidewalk and curb ramp accessibility upgrades, and transportation/signal upgrades of Maria Drive from Rainier Ave. to South McDowell Blvd. More specifically, the work includes roadway excavation and pavement surface reconstruction, pedestrian facility improvements (ADA access, curb ramps, crossings, sidewalks, and other safety improvements), traffic calming measures (sidewalk bulb-outs, and other measures), transit stop improvements, as well as traffic signal connectivity, coordination, and detection upgrades.
- 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) Technical Specifications
- 5) Standard Specifications (Current Caltrans Standard Specifications)
- 6) Drawings
- 7) General Conditions
- 8) Instructions to Bidders
- 9) CONTRACTOR'S Bid (Bid Form)
- 10) Notice Inviting Bids
- 11) Permits from other agencies as may be required by law.

- 3-3. COOPERATION - Attention is directed to Sections 5-1.20, "Coordination with Other Entities", and 5-1.36D, "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 forty-five (45) working days prior to covering/burying these facilities at no cost to the CITY. Failure to do so shall result in the CONTRACTOR being liable for the utility agencies' claims.

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

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

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

Underground Service Alert
Northern California (USA)
Telephone: 1 (800) 227-2600

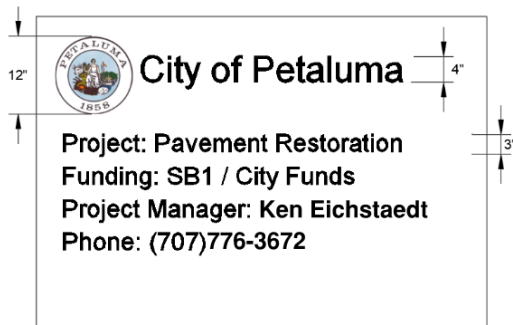
If the CONTRACTOR's certain operation is delayed, in the opinion of the ENGINEER, by the discovery of an underground utility not indicated on the plans or not marked by USA, the CONTRACTOR shall be paid a fair and reasonable compensation for the actual loss. Actual loss shall be understood to include 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.
- 3-6. **PROJECT AND CONSTRUCTION AREA SIGNS** – Project sign and construction area signs shall be furnished, installed, maintained, and removed when no longer required in accordance with the provisions in Section 12, “Construction Area Traffic Control Devices”, of the Standard Specifications.

Two (2) project signs with a minimum dimension of 3’X4’X3/4” plywood bolted to an A-frame barricade shall be furnished, installed and moved from site to site by the Contractor. Letters and numbers shall be black on a white background. The sign information shall be as shown below:

The signs shall be approved prior to fabrication and posted as directed by the Engineer. Below is an example sign with layout information.



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

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

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

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

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

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

- A. Notify all adjacent residents, businesses, City of Petaluma Police and Fire, Green Waste Recovery (residential refuse service company), Waste Management Company (industrial refuse service company), and Petaluma Transit by written notices detailing the type, limits, date and the hours of work. Details of the notice shall be submitted to the ENGINEER for review and approval at least five (5) days prior to delivering these notices.
- B. Where required, post streets with temporary "No Parking/Tow Away" signs at 100-foot intervals at least 72 hours in advance. These signs shall be furnished by the CONTRACTOR and shall state the date; day of week and hour parking is prohibited.

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

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

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

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

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

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

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

Day work: Day work is considered to be work between the hours of 7am and 5 pm Monday through Friday.

Night work: It is anticipated that night work will be required for a portion of the work where construction work will have major impacts to traffic and the community. At a minimum paving work in the intersections of East Washington and McDowell shall occur at night.

Except as otherwise provided, the full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, after 5:00 p.m. on Fridays, on designated legal holidays, during the holiday shutdown period (in applicable areas), and when construction operations are not actively in progress.

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

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

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

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

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

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

- A. Show location and limits of the work zone for each phase or specific operation of construction if requiring different traffic control.
- B. Give dimensions of lanes affected by traffic control that will be open to traffic.
- C. Indicate signing with ca MUTCD designation, cone placement (including spacing), changeable message signs, flashing arrow boards, pavement markings, and other methods of delineation and reference to appropriate standards and sign designations.
- D. Dimension location of signs and cone tapers.
- E. Location of any and all flagmen, if applicable.
- F. Identify side streets and driveways affected by construction and show how they will be handled.
- G. Show how pedestrian and bicycle traffic will be handled through the construction site during all hours including edge grinding operation.
- H. Show locations of night time lighting if applicable.
- I. Indicate how traffic will access the schools.
- J. 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.
- K. Separate Traffic Control Plans shall be prepared for each phase of a construction project and shall be submitted for City's review and approval.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Work within City right of way shall be performed in accordance with City encroachment permit. All trees proposed to be removed shall not be replaced with this project.

- 3-9. WATERING - Watering shall conform to the provisions in Section 17, "Watering", of the Standard Specifications except that full compensation for developing water supply shall be considered as included in the prices paid for various contract items for work involving the use of water and no separate payment will be made therefore. The application of water for dust control will not be considered as extra work under any circumstances. Water can be purchased from the City at current rates provided that the CONTRACTOR meters the water so used with a City furnished meter (a deposit will be required) and a CONTRACTOR furnished valve assembly.
- 3-10. PROGRESS SCHEDULE - The CONTRACTOR shall submit a schedule which includes all major tasks and milestones to the City of Petaluma, Public Works and Utilities Department for review **at least** ten (10) working days prior to start of work.

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

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

- 3-11. SUPERINTENDENCE - The CONTRACTOR shall designate in writing and submit to the Project Engineer two (2) working days before starting work, an authorized representative who shall have the authority to represent and act for the CONTRACTOR for the duration of the contract. Any change in the designation shall require prior approval of the ENGINEER.

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

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

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 – It is anticipated that night work will be required for major construction activities that disrupt traffic and the community and not limited to paving thru the intersections at East Washington Street and South McDowell Boulevard.

Liquidated Damages in the sum of Fifteen Hundred Dollars (\$1,500) per day will be assessed against the CONTRACTOR if he fails to comply with any of the daily conditions or operations such as maintaining erosion control facilities, job site/street cleanliness and daily cleanup and traffic control and flagging, as described in the General Conditions, these Special Provisions, and the Technical Specifications.

If the CONTRACTOR closes a street or sidewalk without prior notice and approval of the ENGINEER within 24 hours, the associated operation will be shutdown at the CONTRACTOR’s expense.

Holidays - Designated legal holidays are: January 1st, the third Monday in January, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, the second Monday in October, November 11th, Thanksgiving Day, the day after Thanksgiving, December 24th and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday. The Contractor shall not work on the legal holidays unless approved in writing by the Engineer.

Holiday Shutdown - No work shall be allowed to be performed in the business district (defined by the map on the City of Petaluma web site at <http://cityofpetaluma.net/cdd/pdf/boundaries.pdf>) between Thanksgiving Day, the day after Thanksgiving, and December 25th thru January 3rd of the following year.

- 3-18. RECORD ("AS-BUILT") DRAWINGS – The CONTRACTOR shall furnish Record Drawings of the complete project and procure from the Director of Public Works a full sized set of Contract Drawings. Construction drawings shall be on the construction site at all times while the work is in progress. Drawings shall show approved substitutions, if any, of material including manufacturer's name and catalog number. The Drawings shall be to scale and all indications shall be neat and legible. All information noted on the CONTRACTOR's job-site print shall be transferred to the Record Drawings by CONTRACTOR and all indications shall be recorded in a neat, legible and orderly way. The Record Drawings shall be signed by the CONTRACTOR and turned over to the Director of Public Works before the final acceptance of the project. If the CONTRACTOR fails to provide the City with an acceptable “Record Drawings”, the City shall deduct \$2,000 from the amount due CONTRACTOR.

- 3-19. NOTICE OF POTENTIAL CLAIM - If for any reason the CONTRACTOR deems that additional compensation is due him/her for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized extra work, a Notice of Potential Claim shall be made. The CONTRACTOR shall give the ENGINEER a written Notice of Potential Claim for such additional compensation before work begins on the items on which the claim is based. The notice shall set forth the reasons for which the CONTRACTOR believes additional compensation will or may be due and the nature of the costs involved. The CONTRACTOR shall afford the ENGINEER every opportunity and facility for keeping records of the actual cost of the work. The CONTRACTOR shall keep records of the disputed work in accordance with Contract General Conditions, Section 11.3, "Cost of Work (Based on Time and Materials)."

If such notification is not given or the ENGINEER is not afforded proper opportunity by the CONTRACTOR for keeping strict account of actual cost as required, then the CONTRACTOR hereby agrees to waive any claim for such additional compensation. Such notice by the CONTRACTOR and the fact that the ENGINEER has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the CONTRACTOR shall, within 10 calendar days, submit his/her written claim to the ENGINEER who will present it to the City for consideration in accordance with local laws or ordinances. The CONTRACTOR is directed to Section 17.20 "Resolution of Construction Claims" of the General Conditions.

Any claim for overhead type expenses or costs, in addition to being certified as stated above, shall be supported by an audit report of an independent Certified Public Accountant. Any claim for overhead shall also be subject to audit by the City at its discretion.

Any costs or expenses incurred by the City in reviewing or auditing any claims that are not supported by the CONTRACTOR's cost accounting or other records shall be deemed to be damages incurred by the City within the meaning of the California False Claims Act.

Nothing in this subsection shall be construed as a waiver of the CONTRACTOR's right to dispute final payment based on differences in in-place quantity measurements or computations of unit priced pay items.

- 3-20. PAYMENT FOR MATERIALS ON HAND - At the discretion of the ENGINEER, partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications. Such delivered costs of stored or stockpile materials may be included in the next partial payment after the following conditions are met:

1. The material has been stored or stockpiled and protected at the sole expense of the CONTRACTOR at a location acceptable to the City and in a manner acceptable to the ENGINEER.
2. The CONTRACTOR has furnished the ENGINEER with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

3. The CONTRACTOR has furnished the ENGINEER with satisfactory evidence that the material and transportation costs have been paid.
4. The CONTRACTOR has furnished the City legal title (free of liens or encumbrances of any kind) to the material so stored or stockpiled.
5. The CONTRACTOR has furnished the City evidence that the material so stored or stockpiled is insured against loss by damage to or disappearance of such materials at anytime prior to use in the work.
6. The CONTRACTOR shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this subsection.

It is understood and agreed that the transfer of title and the City's payment for such stored or stockpiled materials shall in no way relieve the CONTRACTOR of his/her responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications. In no case will the amount of partial payments for materials on hand exceed 70% of the contract price for the contract items in which the material is intended to be used.

- 3-21. ACCESS TO DRIVEWAYS – All accesses for local businesses and residents shall be maintained at all times. Temporary ramps will be required each night for access to driveways for residences and commercial access. The Contractor shall coordinate with each driveway user as needed.
- 3-22. ARCHAEOLOGICAL MONITORING – In the event that archaeological materials are found during construction, CONTRACTOR shall notify the ENGINEER immediately and shall temporarily cease work in the area until a determination or investigation of the site can be made by a qualified archaeologist. Archaeologist services shall be provided by the City at no cost to the CONTRACTOR.
- 3-23. STORM WATER MANAGEMENT, AND SEDIMENT AND EROSION CONTROL – CONTRACTOR shall prepare storm water management, and sediment and erosion control measures for implementation and shall maintain these measures during the construction period.

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 50 percent or less for increases and 50 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 50 percent for increases and 50 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 50 Percent

Should the total pay quantity of any item of work required under the contract exceed the ENGINEER's Estimate therefore by more than 50 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 50 Percent

Should the total pay quantity of any item of work required under the contract be less than 50 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 50 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. INSTRUCTIONS TO BIDDERS -Section 17, “Award of Contract” of the Instruction to Bidders is amended to read:

The award of contract shall be based on the lowest Base Bid (Project A + Project B).

- 3-28. STAGING AREA – It is the responsibility of the Contractor to provide a staging area for equipment and materials. The site and hauling route shall be submitted to the City for approval prior to the commencement of work. The Contractor shall obtain written confirmation from property owners for use of the site.

- 3-29. SCHEDULE -The Contractor shall coordinate construction activities to complete the major paving work in and around the schools on Maria during summer when school is out of session. The school schedule can be found here: <https://www.oldadobe.org/domain/1179>. Major paving activities that disrupt traffic and not limited to paving at major intersections shall be completed at night including any incidental work related to that.

All work happening near Lucchesi Park is to be coordinated with the city to minimize impacts to the ingress/egress of the park.

SECTION IV
TECHNICAL SPECIFICATIONS

SECTION 15 EXISTING FACILITIES

15A. GENERAL

Performing work on existing facilities shall conform to the applicable provisions of Section 15 of the Standard Specifications with the following modifications and additional requirements:

15B. SUBMITTALS -Not used-

15C. MATERIALS -Not used-

15D. TRAFFIC STRIPES AND PAVEMENT MARKINGS

All traffic stripes, pavement markings or any other traffic marking disturbed by construction shall be removed in accordance with Sections 15-2.02B of the Standard Specifications. Replacement shall be in kind by the Contractor to the satisfaction of the Engineer and in accordance with Sections 84 of the Standard Specifications, City Standards, the Plans and these Special Provisions.

15E. PAVEMENT MARKERS

All raised pavement markers disturbed by construction shall be removed in accordance with Sections 15-2.02C of the Standard Specifications. Replacement shall be in kind by the Contractor to the satisfaction of the Engineer and in accordance with Sections 85 of the Standard Specifications, City Standards, the Plans and these Special Provisions.

15F. REMOVAL METHODS

All removed concrete shall become the property of the Contractor and shall be immediately off-hauled. None of the removed concrete shall be dumped or stockpiled on the work site. The Contractor shall dispose of all removed concrete at a recycler for this material. Burying of broken concrete within the limits of the project will not be allowed.

All concrete which is to be removed from sidewalk, curb, gutter and driveway areas shall be removed to the nearest score mark or construction joint as directed by the Engineer unless otherwise noted on Project Plans. The edge of existing concrete to remain shall be neat and free of defects. Saw cutting may be required to achieve this effect.

Reinforcing steel may be encountered in portions of concrete to be removed and no additional allowance will be made for the removal of such steel.

Irrigation facilities may be encountered during concrete removal and replacement. The Contractor shall exercise care in this area and repair any damage done by their operations

at no additional cost to the City.

Landscaping and other surfaces or structures shall be restored to original condition at no additional cost to the City.

15G. TREE ROOT PRUNING

All tree roots two inches and greater which are encountered during excavation must be pruned by hand. The root shall be cut cleanly with a saw to avoid splits. When digging within the drip line of trees, Contractor shall exercise extreme caution to avoid pulling on roots with excavation equipment. Hand dig around all roots greater than one inch in diameter. The Contractor shall notify the Engineer when encountering roots within the drip line of trees which are greater than one inch. If the Engineer elects to get direction from an arborist the Contractor shall redirect crews to other contract work after safeguarding the area.

All new hardscape improvements adjacent to existing trees shall be installed with root barriers to protect new improvements from upheaval from root expansion.

15H. MEASUREMENT AND PAYMENT

Payment for **Tree Removal** shall be paid for at the contract price per **each (EA)** for tree removal which shall include full compensation for furnishing all labor, materials, tools, equipment, for removal of trees and stumps, grinding of stumps and roots to be flush with adjacent grade, removal and disposal of stump grindings, and capping of existing irrigation facilities serving the tree to be removed that conflict with the proposed improvements per contract documents and no additional compensation will be made therefor.

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 therefor.

END OF SECTION

SECTION 20 DUST CONTROL

20A. GENERAL

Dust control shall conform to the provisions in Section 14, "Dust Control," of the Standard Specifications and these technical specifications.

20B. SUBMITTALS -Not used-

20C. MATERIALS -Not used-

20D. CONSTRUCTION

The following on-site mitigation measures shall be implemented for the duration of this project:

- All dust-producing work and unpaved construction sites shall require at a minimum watering in the late morning and at the end of the workday; the frequency of watering shall be increased if dust is mobilized by wind or traffic.
- Contractor shall maintain dust control to the satisfaction of the City Engineer, seven (7) days a week, 24 hours per day.
- The Engineer at his discretion may require sprinkling at any time or place.
- At the end of each work week, the Contractor shall sweep all streets in the work zone with a commercial grade street sweeping machine.

Water is available from the CITY at the current rate 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. Cost may be adjusted at the time of construction.

20E. QUALITY CONTROL -Not used-

20F. MEASUREMENT AND PAYMENT

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 therefor.

END OF SECTION

SECTION 30
MOBILIZATION/DEMobilIZATION

30A. GENERAL

Mobilization shall consist of obtaining all required insurance, bonds, and permits; preparatory work and operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; preparation of a construction schedule; badging and training of flaggers, and other employees; and all other work which must be performed or cost incurred prior to beginning work on the various contract items at the project site.

It is the Contractors Responsibility to provide the necessary construction fencing, security, and erosion control measures. The Contractor shall return the site to its original condition after the completion of the work.

30B. SUBMITTALS -Not used-

30C. MATERIALS -Not used-

30D. CONSTRUCTION -Not used-

30E. SCHEDULE

All work related to Asphalt Paving within the vicinity of the Loma Vista Immersion Academy Elementary Chapter School shall be started and completed during the summer break for the School. The summer break is considered June 7, 2024 thru August 15, 2024. The schedule can be found here: <https://www.oldadobe.org/domain/1179>. Other items of work such as potholing, utility installation, and concrete work can commence at any time prior to Asphalt Paving.

Night work will be required for all work related to Asphalt Paving through the E. Washington and S. McDowell intersections.

All work happening near Lucchesi Park is to be scheduled to minimize impacts to the ingress/egress of the park.

30F. MEASUREMENT AND PAYMENT

Mobilization/Demobilization will be paid for at the contract LUMP SUM (LS) price, which shall include full compensation for furnishing all labor, materials, tools and equipment, permits, and doing all work involved in mobilization, as specified herein, and no additional allowance will be made therefor.

Payment will be made in two installments: 80% in Progress Payment after substantial mobilization has been completed and 20% in the final Progress Payment after Demobilization.

END OF SECTION

SECTION 40 CONSTRUCTION STAKING

40A GENERAL

This work shall consist of furnishing and setting construction stakes and marks by the Contractor to establish the lines and grades required for the completion of the work as shown on the plans and as specified in the Standard Specifications and these Special Provisions. Reference points are to be set by a Licensed Surveyor or Registered Civil Engineer. Slope staking is to be performed by a qualified grade setter.

Stakes or marks will be set by the Engineer as the Engineer determines to be necessary to establish the lines and grades required for the completion of the work specified in these specifications, on the plans and in the special provisions.

When the Contractor requires the stakes or marks, the Contractor shall notify the Engineer of the requirements in writing a reasonable length of time in advance of starting operations that require the stakes or marks. In no event, shall a notice of less than 2 working days be considered a reasonable length of time.

Stakes and marks set by the Engineer shall be carefully preserved by the Contractor. In case the stakes and marks are destroyed or damaged, the stakes and marks will be replaced at the Engineer's earliest convenience. The Contractor will be charged for the cost of necessary replacement or restoration of stakes and marks which in the judgment of the Engineer were carelessly or willfully destroyed or damaged by the Contractor's operations. This charge will be deducted from any moneys due or to become due the Contractor.

In the event the Contractor's operations destroy any of the Engineer's survey control points, the Contractor shall either replace such control points at his expense, subject to verification by the Engineer, or request the Engineer will do so within 10 working days. The cost of any such verification or replacement of the Engineer's control surveys will be deducted from any monies due or to become due the Contractor. The Contractor will not be allowed any adjustment in contract time for such verification or replacement of survey control points by the Engineer.

All computations necessary to establish the exact position of the work shall be made by the Contractor. All computations, survey notes, cut sheets and other records necessary to accomplish the work shall be neat, legible, and accurate. Copies of such computations, notes, and other records shall be furnished to the Engineer at least 48 hours prior to the beginning of work that requires their use.

Construction stakes and markings shall be removed from the site of the work when no longer needed.

40B SURVEY CONTROL AND PLAN

Benchmark

Mag nail in ac, location shown in plan set, elevation 33.57'. Elevations are based upon the North American vertical datum of 1988 (NAVD 88) established by epoch 2017.50 ellipsoid heights as published by the California Spatial Reference center and NGS geoid18.

Basis of Bearing

Bearings are based upon the North American datum of 1983(nad83) (2011), epoch 2017.50, as published by the California Spatial Reference center, California state plane coordinate system, zone 2. Distances are ground based. Multiply by a combined scale Factor of 1.0000212307 to obtain grid distances.

Control

Northing: 1856602.61388

Easting: 6380008.11943

40C MEASUREMENT AND PAYMENT

Construction staking for all work in the project including the roadway work and paving and installation of curb ramps shall be included in the various items of work and will not be paid as a separate item of work and no other compensations shall be paid therefore.

END OF SECTION

SECTION 50 TRAFFIC CONTROL

50A. GENERAL

Construction area traffic control devices shall be installed and maintained in accordance with the applicable sections of these Technical Specifications, the Standard Specifications, the current edition of the California Manual On Uniform Traffic Control Devices (MUTCD), and as directed by the Engineer.

50B. SUBMITTALS

50B.1 TRAFFIC CONTROL PLAN

The CONTRACTOR shall submit to the ENGINEER for approval at least twenty-one (21) 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 Plan (TCP) submittals shall be prepared by a licensed Civil or Traffic Engineer unless authorized otherwise by the Engineer. The TCP will be reviewed by the City of Petaluma. No lane closures will be allowed without written approval from the agencies and/or the ENGINEER. A complete road closure is prohibited.

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 including transit, pedestrians, and bicyclists.
- C. Indicate signing with MUTCD designation, cone placement (with spacing), Portable changeable message signs (PCMS), 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 how transit access (stops and routes) will be maintained or relocated, including information on how the bus passengers (including those in wheel chairs) will be accommodated during bus stop relocation.
- I. Show how the operation of the Eastside Transit Center (at Safeway) will be maintained during construction
- J. Identify school schedule in submittal.
- K. Identify how school access will be maintained for pickup and drop-off.
- L. Show locations of nighttime lighting, especially E. Washington Blvd. and South McDowell Blvd. if applicable.
- M. 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.
- N. Separate Traffic Control Plans shall be prepared for each phase of a construction project and shall be submitted for City's review and approval.

Unless specifically approved in writing, all accesses for local businesses, transit stops 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.

If at any time there is a deviation from the traffic control plan proposed, an additional submittal from the CONTRACTOR is required. Each additional submittal has a five (5) working day review time.

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 & Sonoma County Transit), by written notices detailing the type, limits, date and the hours of work.
 - 1) Details of the notice shall be submitted to the ENGINEER for review and approval at least five (5) days prior to delivering these notices.
- B. Where required, post streets with temporary "No Parking/Tow Away" signs at 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.

Illuminated traffic cones when used during the hours of darkness shall be affixed or covered with reflective cone sleeves as specified in Section 12-3.10, "Traffic Cones", of the Standard Specifications, except the sleeves shall be seven (7) inches long.

When working in or blocking any intersection, the CONTRACTOR shall provide a flag person to direct traffic at that intersection. This flag person is in addition to other required flag persons. The CONTRACTOR, at all times, shall provide flag person(s) to direct delivery trucks and CONTRACTOR'S vehicles entering or leaving the public traffic.

A minimum of one (paved) traffic lane, not less than ten (10) feet wide, shall be open at all times for use by public traffic with adequate flag persons, traffic control, and signing.

Whenever vehicles or equipment are parked on the shoulder within six (6) feet of a traffic lane, the shoulder area shall be closed with fluorescent traffic cones or portable delineators placed on a taper in advance of the parked vehicles or equipment and along the edge of the pavement at 25-foot intervals to a point not less than twenty-five (25) feet past the last vehicle or piece of equipment. All cones, delineators and signs placement shall be shown on the traffic control and approved by the ENGINEER.

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

Except as otherwise provided, the full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, after 5:00 p.m. on Fridays, and designated legal holidays; and when construction operations are not actively in progress. At the end of each working day, any open trench shall be duly steel-plated with an anti-skid coating.

CONTRACTOR shall not store any construction materials on public streets/sidewalks.

The CONTRACTOR shall schedule and coordinate any work that affects the pickup or drop-off riders at a transit stop. If necessary, a transit stop can be temporarily relocated with the assistants of the Contractor and the Transit agency to provide notices and a location of the temporary stop.

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

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.

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

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

Where pavement markers, traffic stripes and/or pavement markings are obliterated by any construction work activity, they shall be replaced by the CONTRACTOR. The entire pavement markings shall be replaced regardless how much area is obliterated by the construction and shall be determined by the ENGINEER. Traffic stripes and pavement markings shall be minimum 0.15-inch-thick thermoplastic conforming to Caltrans Standard Specifications Section 84.

50C. MATERIALS

50C.1 CONSTRUCTION AREA SIGNS

Construction area signs and four (4) portable changeable message signs (PCMS) shall be furnished, installed, maintained, and removed when no longer required in accordance with the provisions in Section 12, "Construction Area Traffic Control Devices", of the Standard Specifications. Messages provided on the PCMS shall be confirmed by the ENGINEER prior to implementation.

Portable Changeable message signs (PCMS) will be installed at the work locations at least 7 days prior to start of construction and maintained in place for the duration of the work by the Contractor. PCMS shall be repaired, replaced, and relocated (within the Project area, as directed by the ENGINEER) at no cost to the City of Petaluma, if damaged or stolen. The Contractor shall remove the signs upon completion of work with prior approval of the Engineer.

Construction area signs will be installed prior to start of construction and maintained in place for the duration of the project by the CONTRACTOR. If damaged or stolen, signs shall be repaired or replaced at no cost to the City of Petaluma. With prior approval of the ENGINEER, the CONTRACTOR shall remove the signs and posts at the completion of the project.

50D. CONSTRUCTION

50D.1 HOURS

All work shall be performed between the hours of 7:00 a.m. and 5:00 p.m. unless approved in writing by the Engineer. Lane closures, if required, will be requested by the CONTRACTOR to the respective local and state agency. The CONTRACTOR shall maintain vehicle access to businesses, homes, and other properties at all times while work is in progress.

Night work is anticipated in areas where work would cause significant delays and impacts to the community. Intersection paving at Maria Drive and East Washington Street and Maria Drive and South McDowell should be completed at night.

50D.2 PEDESTRIAN / BICYCLE TRAFFIC CONTROL

The CONTRACTOR is directed to Chapter 6D and Part 9, Pedestrian and Worker Safety and Traffic Control of Bicycle Facilities, in the MUTCD and applicable California supplements, the improvement plans, and these Technical Specifications.

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. Contractor shall assume that temporary asphalt ramp will be required when sidewalk is closed and the ramps are being constructed. If temporary asphalt ramp is not provided only two corners at an intersection can be close to provide adequate pedestrian circulation.

Bicycle traffic shall be detoured around the construction zones.

The CONTRACTOR shall construct and maintain temporary pedestrian pathways through the work zone that shall be in compliance with the requirements of the Americans with Disabilities Act (ADA), the MUTCD, and applicable California supplements.

Pedestrian routes shall not be impacted for the purposes of any non-construction activities such as parking of vehicles or equipment, or stock piling of materials. Pedestrians shall not be led into conflicts with work site vehicles, equipment or operations.

50E. QUALITY CONTROL -Not used-

50F. MEASUREMENT AND PAYMENT

Traffic Control will be paid for at the contract LUMP SUM (LS) price, which shall include full compensation for conforming to the provisions in this section, furnishing all labor, materials, tools and equipment, and doing all work involved in traffic control, including temporary relocation of regulatory signs, provide/ maintain / relocate a minimum of four portable changeable message boards (PCMS), providing/placing/removal of trench plates, temporary ramping / driveway access and specified night work, as specified herein and / or shown in the approved traffic control plans, and no additional compensation will be made therefor.

Full compensation for pedestrian traffic control including temporary pedestrian ramps shall be considered as included in the contract lump sum price paid for traffic control and no additional allowance will be made therefor.

The cost of furnishing all flaggers, including transporting flaggers, to provide for passage of public traffic through the work under the provisions in Section 7-1.03, "Public Convenience", and Section 7-1.04, "Public Safety" of Standard Specifications 2010, shall be considered as included in the contract lump sum price paid for traffic control and no additional allowance will be made therefor.

END OF SECTION

SECTION 60 STORMWATER MANAGEMENT AND EROSION CONTROL

60A. GENERAL

The CONTRACTOR shall prepare storm water management plan, sediment and erosion control measures for implementation and shall maintain these measures during the construction period.

The minimum storm water management, and sediment and erosion control for the project shall include, but not be limited use of Best Management Practices (BMPs) including 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 Regional Water Quality Control Board (RWQCB) requirements.

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 clean out all storm drains, slot drains, and inlets in the projects limits with vector trucks or equivalent prior to construction at the end of construction.

The CONTRACTOR shall install and maintain all necessary BMP's at the staging area.

The CONTRACTOR shall comply with all Federal, State and local regulations and ordinances governing storm water pollution prevention.

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. The amount of disturbed area is anticipated to be less than one acre.

If required, the CONTRACTOR shall file the Notice of Intent (NOI) with the RWQCB (electronically on SMARTS), prepare the SWPPP, pay the fee(s) and shall comply with the National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Association with Construction Activity requirements, including but not limited to, preparation of the project sediment and receiving water risk level, prepare and implement a Storm Water Pollution Plan (SWPPP) and Rain Event Action Plans (REAP), on-site monitoring, etc. 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 (refer to specification 02140 for additional and more specific dewatering requirements).
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.

60B. SUBMITTALS -Not used-

60C. MATERIAL -Not used-

60D. CONSTRUCTION -Not used-

60E. QUALITY CONTROL -Not used-

60F. MEASUREMENT AND PAYMENT

Stormwater Management and Erosion Control shall be paid for at the contract LUMP SUM (LS) price, which shall include full compensation for conforming to the provisions in this section, furnishing all labor, materials, tools, equipment, and any other work involved in Stormwater Management and Erosion Control including but not limited to evaluation of risk level, preparation of SWPPP (if needed), filing the Notice of Intent (NOI) (if needed), Notice of Termination (NOT) (if needed), and Annual Report (if needed), implementation and maintenance of all stormwater, sediment, and erosion control measures, following Best Management Practices, and all incidentals necessary to

control stormwater pollution, sedimentation, and erosion, and no additional compensation will be made therefor.

END OF SECTION

SECTION 61 STORM DRAIN

61A. GENERAL

The work shall, in general, consist of constructing, relocating, extending, removal, and/or abandonment of storm drain pipes, manholes, inlets, catch basins and related appurtenances. Work shall conform to the plans, the City Storm Drain Design and Construction Standards and Specifications, these Technical Specifications, and as directed by the Engineer.

61B. MATERIALS

61B.1 STORM DRAIN PIPE

Storm drain pipe shall conform to the City Storm Drain Design and Construction Standards and Specifications, and these Special Provisions.

Storm drain pipe shall be high density polyethylene (HDPE) pipe with silt-tight gaskets.

HDPE pipe shall be Type S corrugated polyethylene pipe and conform to Section 64-1.02 of the Standard Specifications and these Technical Specifications.

HDPE pipe, if used, shall be joined with the belt-and-spigot joint meeting AASHTO M252, AASHTO M294 or ASTM F2306. The joint shall be soil tight and gaskets shall meet the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris. A joint lubricant supplied by the manufacturer shall be used on the gasket and bell during assembly. The joint will be watertight to 2 psi with a maximum acceptable leakage of 200 gallons/inch of diameter/mile/day.

61B.2 STORM DRAIN MANHOLE, CATCH BASIN, INLET, DRAIN BOX, SIDEWALK DRAIN, AND V-DITCH

Storm drain manholes, catch basins, inlets, drain boxes, sidewalk drains shall conform to the plans, the City Storm Drain Design and Construction Standards and Specifications, the Storm Drain Installation Detail Specifications number 31, Section 51, "Concrete Structures" of the Standard Specifications, and these Technical Specifications.

61C. CONSTRUCTION

61C.1 STORM DRAIN PIPE

Contractor shall at all times have on hand sufficient pumping equipment and machinery in good working condition to pump ground water if encountered. During pipe laying and pouring of concrete and until concrete has set hard, excavation shall be kept free of water. The detail for unstable trench shown on the City Standard Plans for Storm Drain Number 408 shall be used if ground water and/or mud is encountered in the trench.

Backfill and bedding materials shall be consolidated to 95 percent relative compaction at optimum moisture content in the top 30-inches of the trench and 90 percent relative compaction at optimum moisture content in the remainder of the trench. Backfill and bedding materials shall be State Specification Class 2 aggregate base $\frac{3}{4}$ " maximum grading. Backfill and bedding materials shall be spread and compacted by hand tamping only. The wearing surface for permanent surfacing for the trench area shall be 6 inches thick type A, $\frac{1}{2}$ " maximum, medium grading, conforming to Section 4-1.06, "Asphalt Concrete", of the Technical Provisions, except for payment. Permanent trenching resurfacing shall be placed no later than ten (10) calendar days after start of excavation.

The locations of existing underground facilities shown on the plans are approximate only. The Contractor shall verify the exact locations of these facilities in the field by potholing, which will locate and identify the facilities at the locations designated in the field by the Engineer, at least five (5) working days prior to construction of the new storm drain facilities. No compensation for the right-of-way delays other time extension shall be given.

Full compensation for potholing the existing utility facilities, including backfill, excavation and paving, shall be considered to be included in the various items of work and no additional compensation will be allowed unless there is a separate bid item for this work.

Storm drain laterals broken during construction shall be replaced to the next clean joint by the Contractor. All costs shall be included in the various items of work and no additional compensation will be allowed therefor.

61C.2 STORM DRAIN MANHOLE, CATCH BASIN, INLET, DRAIN BOX, SIDEWALK DRAIN, AND V-DITCH

Portion of the existing drainage pipe(s) in conflict with the new drainage inlet and/or catch basin installation shall be removed and disposed of as shown on the plans or as directed by the Engineer. V-ditches shall be compacted to 90% relative compaction at optimum moisture content.

The Contractor shall stencil on the catch basin covers or on top of the curbs the following wording in white letters on light blue background: "NO DUMPING-FLOWS TO RIVER". A fish symbol shall be stenciled along side of the above wordings. The exact colors and wordings shall be determined by the Engineer.

61C.2.1 Precast Concrete Inlets

Materials for the construction of storm drain inlets, cast in place structures, storm drain grates and minor structures shall be as specified herein. The Contractor shall submit submittals and shop drawings in conformance with section 4.06 Submittals.

Portland cement concrete used for the connection shall be Type II Portland cement concrete with 3/4" max coarse aggregate, having a minimum 28 day compressive strength of 4,000 psi, and shall conform to the requirements in Section 90, Portland Cement Concrete, of the Standard Specifications.

Epoxy #5 Hi Mod fast setting gel adhesive meeting ASTM C-881-90 Type I, II, IV, & V shall be used where dowels are set into new or existing concrete.

Storm drain inlets, and other reinforced pre-cast concrete sections shall be as specified on the plans and shall be satisfactory to the Engineer.

Reinforcement for concrete manholes, inlets, and minor structures shall be Grade 60 as specified in Section 52, "Reinforcement", of the Standard Specifications.

Mortar consisting of one part by volume of Portland cement and 2-1/2 parts by volume of fine aggregates shall be used for plastering and bonding surface of manholes and drainage inlets and shall be of a quality and consistency satisfactory to the Engineer.

Frames and grates shall be provided as specified on the plans. Grates shall be steel, bicycle proof and traffic rated as specified on the plans.

Joint sealant for storm drain structures shall be RAM-NEK Pre-formed Flexible Plastic Gasket or an approved equal. The material used is to be designed for the sealing of joints in pre-cast structures regardless of the shape or size, vertical or horizontal applications. The flexible plastic gasket material is to meet the Federal Specification SS-S-210 A, AASHTO M198 75 1, and ASTM C990-91.

Other materials not specified herein shall be as indicated on the plans or shall be approved materials conforming to the Manufacturer's specifications.

61D. MEASUREMENT AND PAYMENT

Payment for **Type B Catch Basin** shall be paid for at the contract unit price per Each (EA) and will be full compensation for furnishing and installing all labor, materials, tools, and equipment, and doing all work involved in installing a new “Type B Catch Basin” storm drain inlet, removing existing catch basins, staking, layout, potholing, connection of new and existing pipes, demolition, frames and grating etc. as required at the location shown on the plans, complete in place and functioning system and any other work required for the Type B catch basin, not specifically enumerated in these contract documents, and no additional allowance will be made therefor.

Payment for **12” Storm Drain Pipe** shall be paid for at the contract unit price per Lineal Foot (LF) and will be full compensation for furnishing and installing all labor, materials, tools, and equipment, and doing all work involved in installing a 12” storm drain pipe including layout, staking, potholing, excavation pipe bedding, compaction, backfill, connections to new and existing catch basins and storm pipe, abandoning existing pipe, asphalt/ concrete restoration as required at the location shown on the plans complete in plans and functioning per City of Petaluma Construction standards, contract documents and state standards and any other work required for the 15” storm drain pipe not specifically enumerated in these contract documents, and no additional allowance will be made therefor.

Payment for **24” Storm Drain Pipe** shall be paid for at the contract unit price per Lineal Foot (LF) and will be full compensation for furnishing and installing all labor, materials, tools, and equipment, and doing all work involved in installing a 24” storm drain pipe including layout, staking, potholing, excavation pipe bedding, compaction, backfill, connections to new and existing catch basins and storm pipe, abandoning existing pipe, asphalt/ concrete restoration as required at the location shown on the plans complete in plans and functioning per City of Petaluma Construction standards, contract documents and state standards and any other work required for the 15” storm drain pipe not specifically enumerated in these contract documents, and no additional allowance will be made therefor.

Full compensation for **Convert Catch Basin to SDMH** shall be paid for at the contract unit price **each (EA)**, which shall include full compensation for furnishing all labor, materials, tools and equipment, and doing all the work involved in constructing manholes complete in place as shown on the plans including excavation, backfill, furnishing and installing cast iron frame and cover, and no additional allowance will be made therefor.

END OF SECTION

SECTION 70 DEWATERING

70A. GENERAL

The CONTRACTOR shall provide and maintain, at all times during construction, ample means and devices with which to promptly remove and properly dispose of all water from any source entering the excavations or other parts of the Work. Dewatering shall be accomplished by methods that will ensure a dry excavation and preserve the final lines and grades of the bottoms of excavations.

The CONTRACTOR shall provide all labor, materials, and equipment necessary to dewater trench excavations, in accordance with the requirements of the Contract Documents, to enable the pipes to be installed in excavations that are free from standing or flowing water that may be due to groundwater, surface water, storm water, precipitation, recycled water, or wastewater.

Standing water in excavations will not be allowed. The CONTRACTOR shall maintain a dry working area for excavations.

Dewatering shall conform to General Conditions Article 6.21.E “Dewatering Operations.”

70B. CONSTRUCTION

70B.1 SYSTEM DESIGN INSTALLATION AND OPERATION

The Contractor shall be responsible for the following:

- A. Planning, design, installation, and operation of temporary groundwater dewatering systems and temporary surface water control systems. Water control systems designed and installed by the Contractor shall adequately protect existing property, foundations and permanent structures.
- B. Determining means and methods for disposing of water removed by dewatering systems. If permit requirements specify water quality requirements that must be met before water can be disposed, provide the necessary treatment facilities to achieve the specified water quality limits.
- C. Conducting subsurface investigations, when additional information is needed for design of dewatering systems, to identify groundwater conditions and to provide parameters for design, installation, and operation of groundwater control systems.
- D. Obtaining, paying for, and complying with all necessary permits, including those required by California Department of Water Resources (DWR), and the County Department of Public Health for dewatering wells and monitoring wells, those

required by the California Regional Water Quality Control Board Order No. 5-00-175 for discharge of groundwater to stormwater facilities, and those required by the City of Petaluma for discharge to the local sewer system.

- E. Disposing of water in such a manner as to cause no injury or nuisance to public or private property, or be a menace to the public health. Dispose of the water in accordance with applicable regulatory agency requirements.
- F. Providing labor, material, equipment, techniques, and methods to lower, control, and handle groundwater in a manner compatible with construction methods and site conditions. Monitor effectiveness of the installed system and its effect on adjacent property.
- G. Removing all groundwater control systems upon completion of construction or when dewatering and control of surface or groundwater is no longer required. Remove and grout piezometers when groundwater control operations are complete.

70B. MEASUREMENT AND PAYMENT

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 therefor.

END OF SECTION

SECTION 80 EARTHWORK

80A. GENERAL

The CONTRACTOR shall furnish all labor, materials, equipment, and incidentals necessary to perform all earthwork required for construction. Such earthwork shall include, but not be limited to the loosening, removing, loading, transporting, depositing, and compacting in its final location of all materials wet and dry, as required for the purposes of completing the Work specified in the Contract Documents. The Work shall also include, but not be limited to, clearing and grubbing the project area outside of the roadway in preparation for the construction furnishing, performance of plant survey to identify plant types and location prior to clearing and grubbing, phasing, and removing of shoring, dewatering, supporting of structures and utilities above and below the ground; all backfilling around structures and utilities and all backfilling of trenches and pits; the disposal of excess excavated materials; borrowing materials for fills; and all other incidental earthwork; all in accordance with the requirements of the Contract Documents.

Earthwork / Roadway excavation shall conform to the applicable provisions of Section 19 of the Caltrans Standard Specifications. Roadway excavation shall consist of excavation of the roadway prism within the limits for the subjected streets reconstruction and the roadway excavation and embankment construction, for the utility improvements, as shown on the plans, and disposal of excess material, as specified herein.

The Contractor shall revegetate all sites disturbed or scarred by construction activities. Revegetation of disturbed sites should occur prior to the start of the rainy season.

80A.1 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

Without limiting the generality of other requirements of these Specifications, all work specified herein shall conform to or exceed the requirements of the Building Code and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of this Section; provided, that for Building Codes, the latest edition of the code, as adopted as of the date of award by the agency having jurisdiction, shall apply to the Work.

This Section contains references to the following documents. In case of a conflict between the requirements of this Section and those of the listed documents, the requirements of this Section shall prevail.

Specifications, Codes and Regulations:

1. California Department of Transportation Test Method Nos. 301 and 217
2. Caltrans Standard Specifications, Latest Edition
3. U.S. Army Corps of Engineers, Specification CW-002215
4. ASTM D422 – Particle Size Analysis of Soils and Aggregates

5. ASTM D1556 – In-Place Soil Density Test by Sand-Cone Method
6. ASTM D1557 – Moisture-Density Relationship of Soils
7. ASTM D2419 – Determination of Sand Equivalent Value
8. ASTM D2922 – In-Place Soil Density Test by Nuclear Density Gauge
9. ASTM D4318 – Plasticity Index of Soils
10. ASTM D4829 – Expansion Index of Soils

80B. SUBMITTALS

- A. All materials required by the Contract Documents shall be submitted with the Suppliers name, address, telephone number, fax number, email address and the name of the responsive person at the supplier's site.

Submittals shall be provided to confirm that material to be used comply with information specified herein.

For backfill materials:

- (1) Submit a 20 lb. sample, grain size analysis and curve performed in accordance with ASTM D422 and compaction test results (ASTM D1557 Procedure C) for each proposed source of backfill for review by the Engineer at least one week prior to use of the material. The grain size analysis shall indicate that the backfill material conforms to the gradation requirements.
- (2) Controlled Density Fill Mix Design: Prior to beginning the work, the Contractor shall submit for review, controlled density fill mix designs which shall show the proportions and gradations of all materials proposed for each class and type of controlled density fill specified herein.

- B. Contractor shall submit a plant identification plan, and the results of the plant survey, showing plants to be used for revegetation.

80C. MATERIALS

All materials to be used i.e. Class 2 Aggregate Base, Aggregate Base, Coarse Bedding material, Geotextile Fabric, Drain Rock etc. shall comply with the quality requirements of Standard Specifications Section 19 and other applicable specifications.

Controlled density fill shall be manufactured by, or approved equal: Shamrock Materials, Inc., Mix Design Number 1500.

Controlled density fill shall be hatched by a ready mixed concrete plant and mixed and delivered to the jobsite by means of transit mixing trucks.

No equipment or traffic shall be allowed on the controlled density fill until the surface of the controlled density fill will withstand the weight of equipment or traffic without displacement or damage. If necessary to prevent displacement or damage, provide steel

trench plates that span the trench or other means that prevent equipment or traffic contact with controlled density fill.

Hydroseeding shall be provided in upaved areas and other locations which may be disturbed by the construction activities and as directed by the Engineer.

1. In Open Space locations where pipeline is to be installed, the Contractor shall place Native Seed Mix.
2. At the Tie-in locations and surrounding areas, the Contractor shall place Native Seed Mix.

Native seed Mix Shall be comprised of the following:

Seed	Pounds/Acre
California Brome (Bromus californica)	16
Californian Meadow Barley (Hordeum californicum)	12
Blue Wildrye (Elymus glaucus)	10
California Oat Grass (Danthonia californica)	10
Purple Needlegrass (Nasella pulchra)	10

80D. CONSTRUCTION

The CONTRACTOR shall submit an excavation plan for review before any excavation commences. Excavations in areas of pedestrian or vehicular traffic shall be open the minimum time necessary.

80D.1 GENERAL

Except when specifically provided to the contrary, excavation shall include the removal of all materials of whatever nature encountered, including all obstructions of any nature that would interfere with the proper execution and completion of the Work. The removal of said materials shall conform to the lines and grades shown or ordered. Unless otherwise provided, the entire construction site shall be stripped of all vegetation and debris, and such material shall be removed from the site prior to performing any excavation or placing any fill.

Excavations shall be sloped or otherwise supported in a safe manner in accordance with applicable State safety requirements and the requirements of OSHA Safety and Health Standards for Construction (29CFR1926). All excavations shall be dewatered in accordance with Section 70- Dewatering, and shored in accordance with Section 811.

The constructed thickness of the aggregate base layer shall not be less than the design thickness minus 0.04' (1/2 inch). Aggregate base shall be Class 2, 3/4 inch maximum,

and shall be firm and unyielding. The minimum sand equivalent shall be 31 for any individual test. The requirements to use recycled Class II Aggregate base shall only be approved by the ENGINEER.

80D.2 ROADWAY EXCAVATION

Roadway excavation shall be performed by sawcutting, grinding and excavating the subgrade for to the depth indicated on the plans or as directed by the Engineer.

Removal of existing bituminous pavement, base materials, and native materials will be paid for as roadway excavation and no additional allowance made therefor. The subgrade and exposed aggregate baserock shall be moisture conditioned to slightly over optimum moisture content and compacted to a minimum of 95 percent relative compaction (ASTM D1557).

Excess materials from the excavation shall become the property of the CONTRACTOR and shall be disposed of suitably. All costs incurred for at his expense.

80D.3 TRENCH EXCAVATION

- A. No more trench shall be opened in advance of pipe laying than is necessary to expedite the work. One block or 400 feet whichever is shorter, shall be the maximum length of open trench on any line under construction.
- B. Trenches shall be excavated to a width which will provide adequate working space and sidewall clearances for proper pipe installation, jointing, and embedment. Minimum trench width is shown on the contract drawings.
- C. The use of mechanical equipment will not be permitted in locations where operation would cause damage to trees, buildings, culverts, or other existing property, utilities, or structures above or below ground. In all such excavations, hand excavating methods shall be used.
- D. Whenever unsuitable or unstable soil conditions are encountered, trenches shall be excavated below grade and the trench bottom shall be brought to grade with suitable material. In such cases, adjustments will be made in the Contract Price in accordance with the provisions of the General Conditions.

80D.4 PIPE EMBEDMENT

Embedment materials both below and above the bottom of the pipe, classes of embedment to be used, and placement and compaction of embedment materials shall conform to the requirements indicated on the Contract Drawings.

Embedment materials shall be deposited and compacted in a manner which will not cause significant scratching or abrasion of the pipe coating or damage to the polyethylene protection. Embedment material shall be deposited and compacted uniformly and simultaneously on each side of the pipe to prevent lateral displacement.

80D.5 TRENCH BACKFILL

Initial bedding below pipe shall be compacted to at least ninety (90) percent relative compaction prior to laying pipes. Bedding around pipe to twelve (12) inches above top of pipe, shall be compacted to at least ninety (90) percent relative compaction prior to placement of backfill.

Compaction shall be 90 percent minimum below the top 30-inches from finished grade and 95 percent minimum from finished grade to 30-inches below the finished grade. Initial bedding shall be compacted to at least ninety (90) percent relative compaction prior to laying pipes.

CDF may be used as backfill only after twelve (12)-inch (minimum) of aggregate base, Class 2, has been properly placed over the pipe and meeting the previously stated bedding and backfill requirements. CDF shall not be used as pipe embedment.

Drain rock shall not be allowed in stable trenches unless approved by the ENGINEER.

80D.6 UNSTABLE TRENCH

The City standard detail for unstable trench shall be used if ground water and/or mud are encountered in the trenches as determined by the ENGINEER. All costs involved shall be considered to be included in the contract prices paid for the installation of the water services and no additional compensation will be allowed therefor.

80D.7 REVEGATION

The Contractor shall revegetate shall implement a revegetation program with the following conditions:

1. Use drought tolerant native plant species
2. Collect seed material of wood and herbaceous plants from the construction corridor during a suitable season for each group of plants. Used potted plant materials to replace woody vegetation (ie. Trees and shrubs)
3. Apply dried seed material collected as specified earlier evenly to the finish-graded topsoil surface
4. The first six inches of topsoil shall be stripped from areas to be occupied by structures and areas to be excavated. The stripped topsoil shall be stockpiled on-site in designated areas, and not mixed with other soils. Topsoil shall be stockpiled free from vegetation, trash, large stones, and other extraneous material, to the extent possible. Stockpiled topsoil shall be protected from disturbance, rainfall, and erosion until it can be placed as final grade or otherwise reused.

80D.8 QUALITY ASSURANCE

All soils quality control testing will be done by a testing laboratory of the CITY's choice. The CONTRACTOR shall provide the ENGINEER at least 24 hours' notice in advance of required tests.

In case the tests of the fill or backfill show non-compliance with the required density, the CONTRACTOR shall accomplish such remedy as may be required to insure compliance. Subsequent testing to show compliance shall be by a testing laboratory selected by the CITY and shall be at the CONTRACTOR's expense.

All materials to be used shall be natural materials. The requirements to use recycled materials shall only be approved by the ENGINEER.

The CONTRACTOR shall provide safe access in the trench for the CITY's soil compaction testing technician or inspector. This shall include providing and properly installing safety equipment and temporary shoring to enable compaction testing at SEVERAL LEVELS in the trench. Should the CONTRACTOR have backfilled to an elevation above that required to be tested, then the backfill shall be excavated down to the necessary level for testing and provided at the CONTRACTOR's cost. Subsequent backfilling shall also be at the CONTRACTOR's cost.

All authorized observation and testing will be paid for by the CITY. Retesting due to failed tests will be performed at the CONTRACTOR's expense.

80E. MEASUREMENT AND PAYMENT

Payment for all excavation / roadway excavation / trench excavation / pipe embedment / trench backfill etc. which are not covered separately in a specific bid item will be included in various items of work and shall be full compensation for conforming to the provisions in this section, furnishing all labor, materials, tools, and equipment, and doing all work involved, including any other items necessary for performing this work not specifically enumerated in the plans and specifications, and no additional allowance will be made therefor.

END OF SECTION

**SECTION 100
MONUMENTS**

100A. GENERAL

All known existing City monuments within the project limits are shown on the plans and shall be protected in accordance with the requirements of the City of Petaluma Standards and these Special Provisions.

If the monument cover or box is disturbed, the monument shall be checked for disturbance. Any requirement for monument-related replacement due to contractor disturbance shall be at the discretion of the Engineer.

Re-establishment of the monument shall be the contractor's responsibility and shall be performed in accordance with state laws.

The Contractor shall identify all these monuments, preserve the monuments in place, work the FDR operation including compaction by hand in these areas, and adjust lid to finish grade for paving as necessary.

100B. SUBMITTALS -Not used-

100C. MATERIALS -Not used-

100D. CONSTRUCTION

Survey monuments shall be set under the direction of a Land Surveyor licensed to practice in the State of California.

Installation of city monuments shall be in accordance with the City of Petaluma Design and Construction Standards and Specifications 214.1 and 214.2.

100E. QUALITY CONTROL -Not used-

100F. MEASUREMENT AND PAYMENT

Removing and replacing **Survey Monuments** shall be made at the contractor's expense and no additional payment shall be made therefor.

Payment for working the FDR operation including grinding, mixing, grading, compaction and paving operation by hand around the monument including adjustments or resetting of survey can, shall be considered as included in the unit bid price for other contract items and no additional payment shall be made therefor.

END OF SECTION

SECTION 110
ADJUST EXISTING UTILITIES TO GRADE

110A. GENERAL

All structures shall be adjusted to new finished grade including such structures as manholes, vaults, hand holes, drainage structures, and utility valve structures, including raising or lowering and resetting existing frames, covers, grates, and lids. Including adding or replacing riser collars. No facility shall be adjusted to grade until the adjacent pavement or surfacing has been completed. While the project does not intend to change the grade of the existing asphalt there may be a need to adjust some utilities based off final condition.

The plans may not show the location of all utilities that may require adjustment. The Contractor shall review filed condition and record the location requiring adjustment.

Adjustments include modifying the utility structure below the grinding plan and raising or lowering to the finish grade, including all excavation (including removing and reconstruction concrete anchor block), backfill and temporary and permanent repair to the surrounding asphalt concrete surface.

Utility vaults impacted by the proposed improvements that are deemed in poor condition by the utility owner should be removed and replaced in accordance with the applicable standards and specifications.

110B. MATERIALS

110B.1 MANHOLE ADJUSTMENT

This work includes all City owned sanitary sewer or storm drain manholes. All work shall be in accordance with City Standards.

Materials used to accomplish the adjustments shall be at least equal in quality to those in the original structure. Cast iron adjusting rings shall not be used to accomplish the adjustment.

Manhole cover shall be adjusted without disturbing the precast concrete cone.

110B.2 VALVE ADJUSTMENT

This work includes all City owned water valves. All work shall be in accordance with City Standards.

This work includes all PG&E owned gas valves. All work shall be in accordance with PG&E Greenbook standards.

110B.3 LIGHT POLE ADJUSTMENT

This work includes all City owned light poles. All work shall be in accordance with City Standards.

Materials used to accomplish the adjustments shall be at least equal in quality to those in the original structure.

110B.4 UTILITY POLE ADJUSTMENT

This work includes all utility poles that conflict with the proposed improvements. All work shall be in accordance with applicable PG&E Greenbook standards.

Materials used to accomplish the adjustments shall be at least equal in quality to those in the original structure.

110B.5 SURVEY MONUMENT ADJUSTMENT

This work includes all City Survey Monuments that conflict with the proposed improvements. All work shall be in accordance with applicable City of Petaluma Standards.

The contractor is responsible for preservation and/or perpetuation of all existing survey monuments. If the contractor suspects that work will be conducted in an area which may result in the disturbance of survey monuments, the contractor shall retain the services of a licensed professional authorized to practice land surveying to locate said monuments prior to disturbance, re-establish monuments which have been disturbed as a result of construction and file the appropriate documentation with the county once the monuments are reset at the contractor's expense.

110B.6 TELECOM FACILITY ADJUSTMENT

This work includes all telecom facilities that conflict with the proposed improvements. All work shall be in accordance with applicable telecom purveyor standards.

Materials used to accomplish the adjustments shall be at least equal in quality to those in the original structure.

110C. CONSTRUCTION

110C.1 Adjust Existing facilities as shown on the Contract Drawings by raising or lowering to match the new grade line.

110C.2 Construct or alter the structure to the required line and grade

- 110C.3 Use approved cast iron or pre-cast concrete riser collar.
- 110C.4 Adjust frames and covers to new grade
- 110C.5 Perform asphalt pavement work after structures have been adjusted to new pavement grade.
- 110C.6 Maximum adjustments of manhole covers, drainage grates, and valve covers shall be 12 inches plus or minus, unless noted otherwise.
- 110C.7 Replacement of structures in poor condition shall be included in the construction cost for adjusting structures.

110D. QUALITY CONTROL

110E. MEASUREMENT AND PAYMENT

Measurement of payment will be based upon, but not limited to, all labor, materials, tools, equipment, excavation, backfill, concrete, grade rings, debris platforms, asphalt or concrete pavement and mortar for the completion of adjusting all utility valve boxes, utility vaults, survey monument boxes, manholes and other utility structures to grade throughout the project limits, and all other related work per the Contract Documents.

Full compensation for adjusting existing utilities to grade, either by raising or lowering to finished grade, described in this section shall be considered for payment in the bid item **“Adjust Existing Utility Box to Grade”** which will be made at the unit price per **each (EA)** in the Bid Schedule, which price shall constitute full compensation for the completion of all such work as required per the Contract Documents.

Full compensation for adjusting existing utilities to grade, either by raising or lowering to finished grade, described in this section shall be considered for payment in the bid item **“Adjust Existing Valve Cover to Grade”** which will be made at the unit price per **each (EA)** in the Bid Schedule, which price shall constitute full compensation for the completion of all such work as required per the Contract Documents.

Full compensation for adjusting existing utilities to grade, either by raising or lowering to finished grade, described in this section shall be considered for payment in the bid item **“Adjust Existing Manhole to Grade”** which will be made at the unit price per **each (EA)** in the Bid Schedule, which price shall constitute full compensation for the completion of all such work as required per the Contract Documents.

Full compensation for adjusting or replacing existing monuments to grade, either by raising or lowering to finished grade, described in this section shall be considered for payment in the bid item **“Adjust Existing Monument Cover to Grade”** which will be made at the unit price per **each (EA)** in the Bid Schedule, which price shall constitute full compensation for the completion of all such work as required per the Contract Documents.

The estimated quantity of adjusting facilities are for bidding purposes only. This item may be increased, decreased, or eliminated in its entirety based on field conditions evaluated by the Engineer, and no adjustment in the contract bid price or other contract items will be made therefor. The provisions of Section 9-1.06, "Changed Quantity Payment Adjustments," of the Standard Specifications shall not apply.

END OF SECTION

SECTION 120 SIGNS

120A. GENERAL

All signage shall conform to Section 56, "Signs," of the Standard Specifications and in accordance with the details shown on the plans and the City of Petaluma Design and Construction Standards and Specifications. Existing signage affected and /or damaged by the work shall be replaced.

120B. SUBMITTALS

120B.1 STANDARD CALIFORNIA SIGNS

Contractor shall submit to the City, for approval, all sign specifications for standard California signs, as shown in the plans and these technical specifications, prior to installation. All sign references shall be based upon the 2014 California Manual on Uniform Traffic Control Devices (MUTCD) Revision 7.

Contractor shall include the size and quantity of each sign in the submittal.

120B.2 CUSTOM SIGNS

Contractor shall submit to the City, for approval, all sign specifications for custom signs, as shown in the plans and these technical specifications, prior to installation.

120C. MATERIALS

120C.1 SIGNS

All signs and plaques shall conform to current CA-MUTCD standards. Warning (W-series) signs shall be fluorescent yellow-green. All signs and plaques shall be Federally specified .080 gauge, 5052 aluminum. Unless specified otherwise, sign shall be 3M™ DG3 diamond grade cubed or equivalent prismatic sheeting, with anti-graffiti overlay. All sign assemblies shall use provided anti-vandal fasteners and tools to mount components to sign and sign to fixture.

120C.2 RECTANGULAR RAPID FLASHING BEACON SIGNS

See Chapter 920 Electrical for signs to be mounted on RRFB Assemblies.

120C.2 SIGN POSTS

Roadside sign posts shall be 2-inch Telespar posts with pre-punched holes. Posts shall be 12-gage galvanized steel 2-inch square tube with perforations, weighing minimum 2

pounds per linear foot. Sign post foundations shall be cast in concrete per City Standard Detail 208 at 8-inch diameter, 24” depth, and 18” embedded sign tubing sleeve.

120D. CONSTRUCTION

120D.1 SIGNS

Existing roadside signs shall not be removed until replacement signs have been installed or until the existing signs are no longer required for the direction of public traffic, unless otherwise directed by the Engineer.

Existing and new signs to be mounted to existing round posts shall be done in accordance with Caltrans Standard Plan RS6. Signs shall be mounted to new square Telespar posts using rivets in accordance with the manufacturer’s specifications.

120D.2 SIGN POSTS

Posts shall be installed per City Standard and as directed by the Engineer.

120E. QUALITY CONTROL -NOT USED-

120F. MEASUREMENT AND PAYMENT

Payment for **Remove and Reinstall Existing Sign** will be made at the contract price for Each (EA), which shall include full compensation for conforming to the provisions in this section, as shown in the contract plans for furnishing all labor, materials, tools, equipment, for removing and reinstalling existing signage per city standards, performing all other work incidental to it, and no additional compensation will be allowed therefor.

Payment for **Remove and Reinstall Existing Sign and Post in New Foundation** will be made at the contract price for Each (EA), which shall include full compensation for conforming to the provisions in this section, as shown in the contract plans for furnishing all labor, materials, tools, equipment, for removing existing signs and posts and reinstalling said signs and posts in a new foundation per city standards, performing all other work incidental to it, and no additional compensation will be allowed therefor.

Removal and disposal of existing signs, posts, and foundations not to be reinstalled is included in the bid price for the other bid items in this section.

Payment for **New Signs on New Pole** will be made at the contract price **Each (EA)**, which shall include full compensation for conforming to the provisions in this section, as shown in the contract plans for furnishing all labor, materials, tools, equipment, for removing existing signage, installing new signs and posts per city standards, performing all other work incidental to it, and no additional compensation will be allowed therefor.

Payment for **New Sign on Existing Pole** will be made at the contract price **Each (EA)**, which shall include full compensation for conforming to the provisions in this section, as shown in the contract plans for furnishing all labor, materials, tools, equipment, for removing existing signage, installing new signs and posts per city standards, performing all other work incidental to it, and no additional compensation will be allowed therefor.

END OF SECTION

SECTION 130 TRAFFIC STRIPING AND PAVEMENT MARKERS

130A GENERAL

Traffic stripes and pavement markings shall conform to the applicable provisions of Section 84 of the 2022 Standard Specifications, plan no. A20a through A20G of the 2022 Standard Plans and the City of Petaluma Design and Construction Standards and Specifications.

Striping shall be the new 6" width Standard with reflective markers.

Existing signage, stripes and pavement markings which are damaged by the work shall be replaced.

The Contractor shall furnish and apply traffic stripes, characters, arrows, pavement markers, and other delineations and markings. These shall be applied in the original pattern on all streets as shown on the plans, as specified herein, or as directed by the Engineer. Contractor shall install traffic striping and markers in accordance with Sections 84 and 85, "Traffic Stripes and Pavement Markings" and "Pavement Markers".

Temporary pavement delineation shall be furnished, placed, maintained, and removed in conformance with Section 12-3.01, "General," of the Standard Specifications and these special provisions. Nothing in these special provisions shall be construed as reducing the minimum standards specified in the California MUTCD or as relieving the Contractor from the responsibilities specified in Section 7-1.09, "Public Safety," of the Standard Specifications.

All pavement markings and traffic stripes shall be applied in thermoplastic unless otherwise noted. Painted bulb-outs and green markings shall be applied in methyl methacrylate.

130B SUBMITTALS

The Contractor shall furnish the Engineer a Certificate of Compliance in accordance with Section 6-3.05E of the Standard Specifications for each material used. In addition, the Contractor shall furnish METS certificates that materials are authorized for use by Caltrans and MSDS sheets.

130C MATERIALS

130C.1 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS

Thermoplastic traffic stripes (traffic lines) and pavement markings of the various types and sizes shall conform to the provisions in Sections 84-1, "General," and 84-2, "Thermoplastic Traffic Stripes and Pavement Markings," of the Standard

Specifications and these Technical Specifications. Section 84-2.02, "Materials," of the Standard Specifications is deleted.

Thermoplastic material shall be free of lead and chromium, and shall conform to the requirements in State Specification PTH-02ALKYD.

Thermoplastic material shall conform to State Specifications 8010-41G-21. Glass beads to be applied to the surface of the molten thermoplastic material shall conform to the requirements of State Specification 8010-22L-22 (Type II), or AASJTP Designation: M 247 (Type 1).

State Specifications for thermoplastic material and glass beads may be obtained from the Transportation Laboratory, P.O. Box 19128, Sacramento, CA, 95819 (916) 739-2400.

Retroreflectivity of the thermoplastic traffic stripes and pavement markings shall conform to the requirements in ASTM Designation: D 6359-99. White thermoplastic traffic stripes and pavement markings shall have a minimum initial retroreflectivity of 250 mcd m⁻² lx⁻¹. Yellow thermoplastic traffic stripes and pavement markings shall have a minimum initial retroreflectivity of 150 mcd m⁻² lx⁻¹.

Where striping joins existing striping, the contractor shall begin and end the transition from the existing striping pattern into or from the new striping pattern a sufficient distance to ensure continuity of the striping pattern. The entire striping pattern shall be replaced.

Thermoplastic traffic stripes and pavement markings shall be applied at a minimum thickness of 0.125 to 0.150 inches. Thermoplastic traffic stripes and pavement markings shall be free of runs, bubbles, craters, drag marks, stretch marks, and debris.

When applying thermoplastic to concrete surface, the surface preparation shall be per section 84-2.03B of Standard Specification and a primer shall be used per the manufacturer's instructions.

130C.2 CURB PAINT

Red curb paint (no parking) must be Ennis-Flint High Build Fast Dry Waterborne Traffic Paint or approved equal.

Yellow curb paints (median nose) must be Ennis-Flint Standard Dry Waterborne Traffic Paint or approved equal.

White curb paints (traffic island) must be Ennis-Flint Standard Dry Waterborne Traffic Paint or approved equal.

130C.3 METHYL METHACRYLATE PAVEMENT MARKINGS

Methyl methacrylate traffic paint used for painted bulb-outs and green bike lane markings must be on the State Authorized Material List and be Category 2. One known product on the AML is Flint Trading Inc (Ennis Flint) Swarcoplast MMA or PPG MMAX MMA.

The green color for bicycle lane treatments shall be “EF Bike Lane Green”.

The color for painted bulb-outs shall be “Desert Khaki”.

130C.4 130C.5 BLUE RETROREFLECTIVE PAVEMENT MARKERS

Pavement markers shall be on the most current State Authorized Material list for signing and delineation materials. Hot melt bituminous adhesive shall comply with 81-3.02D of the Caltrans Standard Specifications

130C.5 TRAFFIC POSTS

Product used shall be K71 Traffic Channelizer Posts manufactured by US Reflector or approved equal.

130C.6 MOUNTABLE RUBBER CURBS

Product used shall be Treetop Products Premium Recycled Rubber Speed Bumps or approved equal.

Rubber Speed Bumps shall be sized as indicated in the plans (6 feet long).

130D CONSTRUCTION

All construction shall conform to the respective provisions of the Standard Specifications, manufacturer’s installation requirements, and these Special Provisions.

130D.1 EXISTING STRIPING AND MARKINGS

In areas adjacent to the reconstructed surfacing and at all intersection involving work where existing striping must be changed to conform to a revised striping pattern, conflicting striping shall be removed by sand blasting, grinding, or other methods as specified in the Standard Specifications or by the Engineer.

The Contractor shall replace all striping which has been damaged or obliterated by or during the work. This shall include striping replacement completely across the street even in the event that the Contractor’s work may not extend that far. Both lines of each crosswalk shall be completely repainted even if only a portion of a line has been obliterated.

When the Contractor's work removes or reduces the visual appearance of a lane or center line, the Contractor shall replace all striping between the adjacent intersections in both directions. Where a median exists, this work will be required only in the roadway where the work has occurred, unless a detour which altered the pavement markings occurred in the other roadway. In such cases, the striping will be replaced in both directions.

130D.2 TEMPORARY PAVEMENT DELINEATION

A GENERAL

Whenever the work causes obliteration of pavement delineation, temporary or permanent pavement delineation shall be in place prior to opening the traveled way to public traffic. Lane line or centerline pavement delineation and pavement markings for limit lines shall be provided at all times for traveled ways open to public traffic.

Work necessary to establish the alignment of temporary pavement delineation, including required lines or marks, shall be performed by the Contractor. Surfaces to receive temporary pavement delineation shall be dry and free of dirt and loose material. Temporary pavement delineation shall not be applied over existing pavement delineation or other temporary pavement delineation. Temporary pavement delineation shall be maintained until superseded or replaced with a new pattern of temporary pavement delineation or permanent pavement delineation.

Temporary pavement markers and removable traffic tape which conflicts with a new traffic pattern or which is applied to the final layer of surfacing or existing pavement to remain in place shall be removed when no longer required for the direction of public traffic, as determined by the Engineer.

B TEMPORARY LANELINE AND CENTERLINE DELINEATION

Whenever lane lines and centerlines are obliterated, the minimum lane line and centerline delineation to be provided shall be temporary raised pavement markers placed at longitudinal intervals of not more than 24 ft. The temporary raised pavement markers shall be, at the option of the Contractor, one of the temporary pavement markers listed for short term day/night use (14 days or less) or long term day/night use (6 months or less) in "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

Temporary raised pavement markers shall be placed in conformance with the manufacturer's instructions and shall be cemented to the surfacing with the adhesive recommended by the manufacturer, except epoxy adhesive shall not be used to place pavement markers in areas where removal of the markers shall be required.

Temporary lane line or centerline delineation consisting entirely of temporary raised pavement markers placed on longitudinal intervals of not more than 24 ft shall be used on lanes open to public traffic for a maximum of 14 days. Prior to the end of the 14 days, the permanent pavement delineation shall be placed. If the permanent pavement delineation is not placed within the 14 days, additional temporary pavement delineation shall be provided at the Contractor's expense. The additional temporary pavement delineation to be provided shall be equivalent to the pattern specified for the permanent pavement delineation for the area, as determined by the Engineer.

C TEMPORARY PAVEMENT MARKINGS

Whenever a pavement marking for a limit line is obliterated, the minimum temporary pavement marking shall consist of temporary removable construction grade striping and pavement marking tape. Temporary removable construction grade striping and pavement marking tape, when used, shall be applied in accordance with the manufacturer's recommendations. The color and dimensions of temporary pavement markings shall conform to the details shown on the plans for permanent pavement markings. Temporary pavement markings shall be used on lanes opened to public traffic for a maximum of 14 days. Prior to the end of the 14 days the permanent pavement markings shall be placed. Temporary pavement markings shall be removed when no longer required for the direction of public traffic, as determined by the Engineer.

130D.3 LAYOUT FOR TEMPORARY AND PERMANENT STRIPING

The alignment and layout of traffic stripes shall conform to Subsection 84-1.02, "Control of Alignment and Layout", of the Standard Specifications.

The Contractor shall physically tie down the location of the beginning and ending of each paint or thermoplastic marking type in the adjacent curb top. The marking location shall not exceed fifty square inches each. Any locations exceeding this limit shall be removed by the Contractor prior to acceptance of the work. The Contractor shall contact the City Traffic Division for review of tie downs.

The Contractor shall be responsible for accurately referencing out and replacing the lines and positions of all traffic lines, directional lines, arrows, and other markings in accordance with the plans and City standard markings by cat tracking with painted marks. This shall occur no later than two hours behind the final surface course paving operation.

Cat tracking shall consist of stretching a rope on a straight line between control points on tangent alignment and on a true arc through control points on curved alignment and placing spots of paint along the rope. Temporary tab markers shall

be placed not more than twelve (12') feet apart on curves nor more than twenty-four (24') feet apart on straight segments.

Temporary tab markers shall be the same color as the traffic stripe that they are replacing, shall measure two (2") inches tall by three and one-half (3-1/2") inches wide, and have a reflective lens across the width of the marker.

Prior to application of permanent striping and markers, the Contractor shall call for review and approval of the proposed striping by the City's Traffic Engineer or agent. The City shall have the right to make changes in the location and alignment of line stripes. Striping and traffic markings shall not be applied until after approval is granted by the Traffic Engineer. The Contractor shall allow a minimum of three (3) working days for review of the layout by the City.

130D.4 SCHEDULE

Permanent traffic striping and markings including legends and arrows shall be placed within twenty-one (21) days after paving or surfacing, unless otherwise directed by the Engineer.

Temporary yellow marking tape denoting school crosswalks shall be placed the same day that the pavement surfacing is placed.

Failure to comply with these requirements shall result in a liquidated damage of \$1,000 per day for each street that has not received permanent installation of the required raised pavement markers, traffic striping, and markings.

130D.5 PAVEMENT STENCILS

The Contractor shall use stencils which conform to Caltrans Standard Plans and Details.

130D.6 RETROREFLECTIVE PAVEMENT MARKERS

Blue retroreflective pavement markers shall be installed 6 inches from centerline at all fire hydrants.

130D.7 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS

Pavement temperature shall be measured at the beginning of the shift on each working day and this information shall be provided to the Traffic Engineer.

No primer or thermoplastic shall be installed within forty-eight (48) hours from the last measurable rain report as provided by the City.

Thermoplastic traffic striping, legends, and arrows shall conform to the provisions of Section 84-1, "General"; Section 84-2, "Thermoplastic Traffic Stripes and Pavement Markings"; and refer to Section 85, "Pavement Markers", and these Special Provisions.

130D.8 METHYL METHACRYLATE PAVEMENT MARKINGS

The asphalt pavement surface shall be dry and free from all foreign matter, including but not limited to dirt, dust, and chemical residue.

Apply the methyl methacrylate when the pavement surface and atmospheric temperatures are from 40 to 104 degrees F.

Apply methyl methacrylate paint at a minimum thickness of 0.090 inch.

Apply the glass beads recommended by the methyl methacrylate manufacturer.

Contractor shall follow manufacturer's guidelines regarding atmospheric conditions. Coating application shall not proceed if precipitation is forecast for the immediate 24 hours after the intended date of application.

Application of coating product shall be performed using all equipment and processes specified by the manufacturer.

Green coloring shall be applied to the asphalt after installing white stripes and pavement markings. White stripes (Detail 39 or 39A) adjacent to green coloring shall be masked prior to installation of green coloring. Green coloring shall not be applied over bike markings (bike symbol and arrow or shared lane "sharrow" markings).

Beige coloring shall be applied to the asphalt after installing white stripes but before installing traffic posts and traffic signs. White stripes adjacent to beige coloring shall be masked prior to installation of beige coloring.

The Contractor shall protect the pavement markings from damage and allow them to fully cure prior to allowing traffic to drive over markings. Any damage shall be corrected by the Contractor at the Contractor's expense.

130E QUALITY CONTROL

Contractor shall provide manufacturer's certificates for all the products used, stating that the products used in this project are compliant with the requirements of this contract specifications.

130F MEASUREMENT AND PAYMENT

Full compensation of work pertaining to Caltrans Standard Plan Details as listed below shall be considered for payment, which will be made at the contract bid item unit **price per linear feet (LF)** in the Bid Schedule, which price shall constitute full compensation for the completion of all such work including; surface preparation, layout, thermoplastic striping, pavement marker installation, regardless of the number of individual stripes and/or pavement markers comprising the detail or the number of striping passes required and all other related work per the Contract Documents. No additional compensation will be allowed therefor.

Measurement and payment for all the following items will be based upon, but not limited to, furnishing all labor, materials, tools, equipment and other incidentals necessary for preparation, layout and installation and coordination with the City Traffic Engineer shall be included in the various items of work, all shall be complete in place and no additional/separate compensation/payment shall be allowed therefor.

<u>Bid Item #</u>	<u>Description</u>
130.2	Detail 22 6" Double Yellow Stripe
130.3	Detail 29 6" Double Yellow Stripe Median
130.4	6" Yellow Buffer Stripe
130.5	Detail 27B, 39, 39A 6" White Stripe
130.6	6" White Buffer Stripe
130.7	Detail 38 and Painted Bulb-Outs, 8" White Stripe

Measurement and payment for Thermoplastic Pavement Markings will be based upon, but not limited to, furnishing, labor, materials, tools, equipment and other incidentals necessary for the complete layout and installation of thermoplastic pavement markings, throughout the project limits, including surface preparation, layout, markings and all other related work per the Contract Documents.

Full compensation of work pertaining to white or yellow thermoplastic pavement markings of the various types in this section shall be considered for payment in the Bid Item for **“Pavement Markings, (crosswalk, words, arrows, symbol markings, yield line markings)”** which will be made at the unit price **per square feet (SF)** in the Bid Schedule, which price shall constitute full compensation for the completion of all such work as required per the Contract Documents.

Full compensation of work pertaining to **“Pavement Color Treatment Methyl Methacrylate”** in this section shall be considered for payment in the Bid Item for **Pavement Color Treatment MMA** which will be made at the unit price **per square foot (SF)** in the Bid Schedule, which price shall constitute full compensation for the completion of all such work as required per the Contract Documents.

Full compensation of work pertaining to blue retroreflective pavement markers section shall be considered for payment in the Bid Item for **“Blue Pavement Marker”** which will be made at the unit price per **each (EA)** in the Bid Schedule, which price shall constitute full compensation for the completion of all such work as required per the Contract Documents.

Full compensation of work pertaining to curb markings section shall be considered for payment in the Bid Item for “**Curb Paint, Red**” and “**Curb Paint, White**” which will be made at the unit price **linear feet (LF)** in the Bid Schedule, which price shall constitute full compensation for the completion of all such work as required per the Contract Documents.

Unless there are separate bid items, payments for temporary pavement delineation, traffic striping layout, preparation of surface including existing traffic striping/marketing/marker removal, and coordination with the City Traffic Engineer shall be included in the various items of work and no additional/separate compensation/payment shall be allowed therefore. Replacement of traffic stripes shall be considered as included in the various items of work and no additional compensation will be allowed therefor.

Full compensation of work pertaining to **Mountable Rubber Curb** installation shall be considered for payment in the Bid Item for “**Mountable Rubber Curb**” which will be made at the unit **price per each (EA)** in the Bid Schedule, which price shall constitute full compensation for the completion of all such work as required per the Contract Documents.

Full compensation of work pertaining to **Traffic Posts** installation shall be considered for payment in the Bid Item for “**Traffic Posts**” which will be made at the unit price per each (EA) in the Bid Schedule, which price shall constitute full compensation for the completion of all such work as required per the Contract Documents.

END OF SECTION

**SECTION 180
FINAL CLEANUP**

180A. GENERAL

Before final inspection of the work, the Contractor shall clean the work and all ground occupied by him in connection with the work, of all rubbish, excess materials (including liquid asphalt), and equipment. The sidewalks and curbs shall be thoroughly swept clean of all dirt, dust and foreign material. All parts of the work shall be left in neat and presentable condition. All USA markings shall be removed in project area at completion of the project.

180B. SUBMITTALS -Not Used-

180C. MATERIALS -Not Used-

180D. CONSTRUCTION -Not Used-

180E. QUALITY CONTROL -Not Used-

180F. MEASUREMENT AND PAYMENT

Payment for cleaning of sidewalks and curbs, and clean up in general, shall be considered as included in the unit bid price for other contract items and no additional payment shall be made therefor.

END OF SECTION

SECTION 190
PRESERVATION OF PROPERTY

190A. GENERAL

Attention is directed to the provisions in Section 5-1.36, "Property and Facility Preservation," of the Standard Specifications and these Special Provisions.

190B. SUBMITTALS -Not Used-

190C. MATERIALS -Not Used-

190D. CONSTRUCTION

Existing trees, shrubs, and other plants, that are not to be removed and are injured or damaged by reason of the Contractor's operations, shall be replaced by the Contractor in accordance with the requirements in Section 20-2.03B, "Replacement," of the Standard Specifications and in accordance with the requirements contained herein.

190E. CONSTRUCTION FENCING

The Contractor will be expected to conduct their operations in a manner, which creates a minimum amount of damage to the natural vegetation, landscape and existing site improvements. Care shall be exercised to avoid hazards that may cause injury to persons, animals or property either during working hours or after working hours, which would include dust control, backfilling trenches immediately following pipe laying, and temporary fencing as required.

The immediate construction area shall be completely fenced with temporary construction fencing prior to the start of any demolition work and during all phases of construction. This fencing shall secure the construction site from entry and shall be securely locked during non-working hours. Temporary construction fencing shall be removed upon the completion of work.

190F. QUALITY CONTROL -Not Used-

190G. MEASUREMENT AND PAYMENT

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 therefor.

END OF SECTION

**SECTION 220
AGGREGATE BASE**

220A. GENERAL

Aggregate base shall conform to Section 26, "Aggregate Bases," of the Caltrans Standard Specifications, the City of Petaluma's Design and Construction Standards and Specifications, the plans, and these Technical Specifications.

220B. SUBMITTALS

Contractor shall submit to the City the typical gradation document of the specified aggregate base in the plans and/or these technical specifications.

220C. MATERIALS

Backfill material shall be Class 2 aggregate base three-quarter (3/4) inch maximum conforming to Section 26 of the Standard Specifications.

220D. CONSTRUCTION

220D.1 AGGREGATE BASE

The constructed thickness of the aggregate base layer shall not be less than the design thickness minus 0.04' (1/2 inch). Aggregate base shall be Class 2, 3/4 inch maximum, and shall be firm and unyielding. The minimum sand equivalent shall be 31 for any individual test. The requirements to use recycled Class II Aggregate base shall only be approved by the ENGINEER.

220E. QUALITY CONTROL

Aggregate must comply with the grading requirements as shown in Section 26 of the Standard Specifications

220F. MEASUREMENT AND PAYMENT

Full compensation for Aggregate Base shall be considered as included in prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

END OF SECTION

SECTION 300 POTHOLING

520A. GENERAL

All necessary utilities shall be potholed and positively located vertically and horizontally and shall conform to the City of Petaluma's Construction Standards, the plans, and these Special Provisions. Potholing shall be completed to positively locate utilities related to the road reconstruction and installation of new utilities.

520B. SUBMITTALS

The Contractor shall provide a potholing plan and records.

520C. CONSTRUCTION

520C.1 POTHOLING

The locations of the existing underground utilities shown on the plans are approximate only. The CONTRACTOR shall verify the exact locations of those facilities in the field by potholing, probing, or other means, which will locate and identify the facility at the locations designated in field by the ENGINEER, at least seven (7) working days prior to the construction. No compensation for right-of-way delays other than time extension shall be given. Neither trench excavation nor pipe laying shall be performed until all potholing has been completed and the ENGINEER has reviewed the potholing information as a required submittal. No compensation for pothole bid items for utilities located while excavating.

520D. QUALITY CONTROL

The Contractor shall provide manufacturers certificates for all pipe materials and appurtenances.

520E. MEASUREMENT AND PAYMENT

Potholing shall be paid for at the contract Lump Sum (**LS**) shall be full compensation to the provisions in this section, furnishing all labor, materials, tools and equipment and doing all the work involved in potholing existing utilities in horizontal and vertical alignment conflict with road reconstruction and the installation of the recycled water main, services and fire hydrant relocations. Including excavation, locating, coordination, restoration and reconstruction of pavement landscaping and irrigation facilities; temporary trench paving; testing; and any other items necessary to pothole existing utilities when required by the work or shown on the plans, not specifically enumerated in the plans or these specifications, and no additional allowance will be made therefor.

END OF SECTION

SECTION 301

COLD PLANING/GRINDING

301A. GENERAL

Cold planing/grinding shall include all work necessary to remove existing asphalt pavement to depth as indicated on the drawings or these specifications. The work includes, but is not limited to, removal of the existing pavement including but not limited to edge grinding and ends of overlays. Existing pavement surface on roadways to be milled prior to pavement overlay shall be cold planed as specified herein.

301B. SUBMITTALS

301C. MATERIALS

301C.1 EQUIPMENT

The machine used for planing shall have performed satisfactorily on similar work and shall meet the following requirements herein.

The planing machine shall be specifically designed and built for the planing of bituminous pavements without the addition of heat to soften the pavement during or prior to the planing operation.

The machine shall be capable of being operated at speeds of zero to forty feet per minute. It shall be self-propelled, and have the capability of spraying water at the cutting drum to minimize dust. The machine shall be operated in such a way so that no fumes or smoke will be produced. The machine shall be capable of removing the paving material next to curbs or gutters and be designed such that the operator thereof can at all times observe the planing operation without leaving the controls. The machine shall be adjustable for slope and depth and shall be equipped with sonic sensing devices for controlling depth.

Prior to cold planing, all utility facilities shall be lowered to 1" below the grinding planes.

301D. CONSTRUCTION

301D.1 PAVEMENT REMOVAL

Prior to cold planing, all utility covers shall be lowered such that the cutting teeth of the planing machine passes over the adjusted lid without causing damage to the lid or frame. Contractor will be responsible for maintaining any temporary asphalt fill material over these facilities until the final paving surface is installed. The Contractor shall clearly

mark or reference all lowered utility covers in case emergency access is required by the responsible agency

301D.2 CONCRETE GRINDING

Prior to grinding, all utility covers shall be lowered such that the cutting teeth of the planing machine passes over the adjusted lid without causing damage to the lid or frame. Contractor will be responsible for maintaining any temporary fill material over these facilities until the leveling is complete. The Contractor shall clearly mark or reference all lowered utility covers in case emergency access is required by the responsible agency

301D.3 REMOVAL AND DISPOSAL OF MATERIAL

During the cold planing operation, the Contractor shall sweep the roadway with mechanical equipment and remove all loosened material from the project site until completion of the removal work.

All material removed shall be considered the property of the Contractor and shall be removed and disposed of in accordance all applicable laws at the Contractor's expense.

301D.4 AIR POLLUTION CONTROL

The Contractor shall take all necessary measures to avoid the dispersion of dust. Attention is directed to Subsection 7-1.01F of the Standard Specifications and "Dust Control" of these Technical Specifications.

301D.5 TEMPORARY TRANSITIONS

The Contractor shall construct temporary pavement transitions prior to allowing traffic onto cold-planed pavement areas. Such transitions shall have a maximum slope of 20:1 and be constructed on Kraft paper or other suitable bond breaker such that upon removal of the transition a clean notch remains. Temporary transitions are not necessary in traffic areas if the drop off is less than 0.10 feet. Temporary transitions shall be required at all conforms, pedestrian ramps, cross gutters and driveways with drop offs greater than 0.10 feet.

301D.6 CORRECTION OF TEAR-OUT AREAS

If tear-out to the underlying layers occurs during the cold planing operation, the Contractor shall adjust his operation to minimize tear-out. Corrections shall include changing operation speed and replacing cutting teeth. Changes in cold planing depth shall only be made with approval of the Engineer.

Areas torn out by lack of diligence on the Contractor's part shall be corrected by placement of asphalt concrete conforming to the requirements of these special conditions. Areas torn out due to pre-existing adhesion problems in the existing asphalt concrete shall be immediately reported to the Engineer.

301E. QUALITY CONTROL

301E.1 TOLERANCES

The pavement surface after cold planing shall be uniformly rough. The grade shall not deviate from a suitable straight edge more than 1/4 inch at any point. When multiple passes are required to create the cold planed surface, the maximum variation from a string-line or straight edge shall be 1/4 inch high to 1/2 inch low. High points out of tolerance shall be re-planed to fall within tolerance. Low areas shall be filled with asphalt concrete as specified herein to meet tolerances. The cost of such correction of low areas shall be entirely the Contractor's.

301F. MEASUREMENT AND PAYMENT

Payment for **2" Cold Planing/Grinding** shall be paid for at the contract price per **square yard (SY)** for asphalt overlay and paving, which shall include full compensation for furnishing all labor, materials, tools, equipment, for grinding existing asphalt concrete per contract documents and no additional compensation will be made therefor.

Payment for **Sidewalk Conform Grinding** shall be paid for at the contract price per **square foot (SF)** for grinding concrete sidewalk that has heaved, which shall include full compensation for furnishing all labor, materials, tools, equipment, for grinding existing concrete per contract documents and no additional compensation will be made therefor.

SECTION 302

FULL DEPTH RECLAMATION – LIME / CEMENT

302A. GENERAL

The Contractor shall complete full depth reclamation (FDR) that consists of pulverizing and mixing existing asphalt pavement and base course material with Lime, soil and water to produce a dense, treated base (if required) and a second pass to mix Portland cement, lime treated base and water to produce a dense, hard, cement-treated base. It shall be proportioned, mixed, placed, compacted, cured and shall conform to the lines, grades, thicknesses, and cross sections shown in the Plans, as described in this specifications, and the following 2018 standard specification:

1. Section 25, Aggregate Subbase
2. Section 26, Aggregate Bases
3. Section 27, Cement Treated Bases

In the areas of Cement and lime treatment the Cement content is 2% and the lime content is 2% and to a uniform depth of 1.17' as shown on the plans.

In the areas of Cement treatment the Cement content is 3% and to a uniform depth of 1.17' as shown on the plans.

Asphalt concrete overlay paving will begin immediately following micro-cracking.

Contractor will plan his operation such that the location of the edges of pavement remain the same as existing and the pavement footprint does not increase. Furthermore, contractors operations will not infringe upon roadside ditches. Section 30-4 includes specifications for constructing a base using full-depth reclamation–cement (FDR– C).

FDR–L consists of:

1. Pulverizing existing AC and base material with Lime (where applicable)
2. Mixing with water, Cement, and if specified, supplementary aggregate
3. Grading and compacting the mixture
4. Applying water Maintain and moisture condition finished FDR surface

FDR–C consists of:

1. Pulverizing existing lime treatment with Cement (where applicable)
2. Mixing with water, Cement, and if specified, supplementary aggregate.
3. Grading and compacting the mixture
4. Applying water maintain and moisture condition finished FDR surface

302B. SUBMITTAL

The FDR Contractor shall submit a sequencing plan and traffic control plan for FDR operation illustrating the stages and duration of work as well as proposed methods to manage site materials. Mixing, curing and paving operation shall be sequenced to minimize traffic disruption taking into account that multiple passes are required when lime treatment is necessary.

Scheduling of Full Depth Reclamation operation shall clearly depict when the work shall take place and the equipment availability to provide adequate time to perform the work within the work hours and per the specifications.

The FDR Contractor shall furnish and submit Cement Mix Design and Lime/ Cement Mix Design

302C. QUALITY CONTROL PLAN

The Contractor shall provide a contingency plan that describes the corrective actions you will take in the event of equipment break down. The corrective actions must include repairing and reopening the roadway to traffic using minor HMA under section 39.

302D. QUALITY CONTROL REPORTING

For each lot, submit a report daily that includes the following items based on the frequencies specified in section 30-4.01D(4):

1. General Information:
 - a. Lot number
 - b. Location description
 - c. Beginning and ending stations
 - d. Lane number and offset from centerline
 - e. Weather:
 - i. Ambient air temperature before starting daily FDR-L / FDR-C activities including time of temperature reading
 - ii. Road surface temperature before starting daily FDR-L / FDR-C activities including time of temperature reading

2. Calculated cement application rate in lb/sq yd and percent of dry weight of FDR–L / FDR–C
3. Calculated supplementary aggregate application rate in lb/sq yd and percent of dry weight of FDR–L / FDR–C if supplementary aggregate is specified
4. For FDR–L / FDR–C processing:
 - a. Depth of cut
 - b. Average forward speed
5. FDR–L / FDR–C quality control test results for:
 - a. Gradation
 - b. Moisture content
 - c. Unconfined compressive strength
 - d. In-place wet density
 - e. Relative compaction
 - b. Note on the daily report the postmile or station limits of any unsuitable materials locations and when the Engineer was notified

Update each day's submitted report within 24 hours of obtaining test results.

Consolidate all lots completed in a day in one report with each lot reported separately.

302E. QUALITY CONTROL AND QUALITY ASSURANCE

302E.1 GENERAL

Schedule a preoperation conference at a mutually agreed time at the job site to meet with the Engineer a minimum of 5 days prior to start of work on a particular road.

Discuss the project specifications and methods of performing each item of the work.

Items discussed must include the processes for:

1. Production and cement / lime content
2. Limits of Cement treatment, Cement/Lime treatment and paving
3. Compacting
4. Grading
5. Finishing
6. Implementing the approved QC plan
7. Implementing the contingency plan
8. QC sampling and testing
9. Acceptance criteria

Preoperation conference attendees must sign an attendance sheet provided by the Engineer. The preoperation conference must be attended by your:

1. Project superintendent
2. Project manager

3. Inspector
4. Workers and your subcontractor's workers, including:
 - a. Foremen
 - b. Ground supervisors
 - c. Representative from testing lab

Do not start FDR-C activities until the listed personnel have attended a preoperation conference. Relative compaction must be determined under California Test 231 and the following:

1. Test in 0.50-foot depth intervals from the bottom of the FDR – L /FDR-C layer regardless of the Layer thickness
2. Correction for oversize material does not apply
3. A sample must contain no more than 5 percent retained on the 2-inch sieve and 15 percent retained on the 1-1/2 inch sieve
4. Use the laboratory wet test maximum density closest in proximity to the lot to determine relative compaction. If the relative compaction for a lot is less than 97 percent, perform California Test 216 and California Test 226 for each noncompliant lot and recalculate the relative compaction.

Divide the area to receive FDR – L /FDR-C into lots of FDR – L /FDR-C produced except the test strip is the 1st lot and must be at least 2,000 sq yd. A quantity of FDR-C placed at the end of a work shift greater than 500 sq yd is considered 1 lot. If a quantity of FDR-C placed at the end of a work shift is less than 500 sq yd, you may either count this quantity as 1 lot or include the test results for quality control in the previous lot.

For any lot, stop FDR – L /FDR-C activities and immediately inform the Engineer whenever:

1. Any test result shown in the QC Requirements table or the FDR – L /FDR-C Acceptance Criteria Testing table does not comply with the specifications
2. Visual inspection shows evidence of:
 - a. Poor dispersion or dry spots
 - b. Segregation, raveling, and loose material
 - c. Variance of more than 0.05 foot measured from the lower edge of a 12-foot straightedge
 - d. Nonuniform surface texture throughout the work limits
 - e. Repaired areas

If FDR – L /FDR-C activities are stopped, before resuming activities:

1. Notify the Engineer of the adjustments you will make

2. Remedy or replace the noncompliant lot until it complies with specifications
3. Engineer's approval of changes required prior to proceeding

302E.2 MIX DESIGN SAMPLING AND TESTING

The FDR – L /FDR-C mix design process must comply with California Test 356. Notify the engineer at least 2 days before sampling.

Excavate, sample, and test at least 3 test pit locations from the existing pavement structure. You may perform additional sampling and testing to optimize the mix design. Determine the exact location of the test pits and excavate test pits between wheel paths. Do not excavation test pits in the wheel path or shoulders. Test pits must be at least 2 ft by 2ft in area to a depth of at least 1.5 feet below the existing surface.

Obtain representative pavement and underlying base material samples for FDR-C from test pits. If additional samples of subgrade material are needed, test pits can be excavated outside the edge of pavement variable dimensions. Characterized and record test pits features such as layer thickness and type of distress, interlayers, thin or thick areas, dig outs and adhesion to the base. Use the sampled material to determine the mix design according to the proportions of the pavement structure shown.

Cement content percentage, as described in these special provisions, is percentage maximum by dry weight of FDR-C.

QUALITY CONTROL, SAMPLING AND TESTING

- a) Only required for non-potable water sources.
- b) Remove solids larger than 3 inches.
- c) If test fails, minimum test frequency is 1 per lot
- d) Sample immediately after mixing is complete

Quality characteristic	Test method	Minimum sampling and testing frequency	Requirement	Sampling location	Maximum reporting time allowance
Water SULFAT ^a (ppm, max)	California Test 417	1 per source	1,300	Source	Before work starts
Water chlorides ^a (ppm, max)	California Test 422	1 per source	650	Source	
Gradation (% Passing) ^b Sieve Size 3 inch 2 inch 1-1/2 inch	California Test 202	Test strip and 1 per lot	100 95-100 85-100	Loose mix after pulverizing and mixing	24 hours
Moisture content (%)	California Test 226	Test strip and 2 per day ^c	Mix design \pm 2 percentage points	Loose mix after pulverizing and mixing ^d	24 hours
Unconfined compressive strength (psi)	ASTM D 1633 ^e	Test strip and 1 per 2 lots	Specified in section 30- 4.01D (2)	Loose mix after pulverizing and mixing ^d	24 hours after testing specimens
Laboratory maximum wet density (lf/cu ft)	California Test 216	Test strip and 2 per day	Use for relative compaction calculation	Same location as a California Test 231 test	24 hours
Relative compaction (% min) (wet density) ^f	California Test 231	Test strip and 1 per lot	97	Compacted	24 hours

- e) Method A, except:
 - a. Test specimens must be compacted under ASTM D1557 or CT 216, Method A or B.
 - b. Test specimens must be cured by sealing each specimen with 2 layers of plastic at least 4- mil thick. The plastic must be tight around the specimen. Seal all seams with duct tape to prevent moisture loss. Sealed specimens must be placed in an oven for 7 days at 100 ± 5 degrees F. At the end of the cure period, specimens must be removed from the oven and air-cooled. Duct tape and plastic wrap must be removed before capping. Specimens must not be soaked before testing.
- f. Verify the moisture content reading made under California Test 231 with California Test 226. Measure and record the actual cut depth at both ends of the pulverizing drum at least once every 300 feet along the cut length. Take measurements in the Engineer's presence.

302F. ACCPETANCE CRITERIA

FDR–C acceptance is based on:

1. FDR – L /FDR–C acceptance is based on:
 - a. Visual inspection for the following:
 - b. Segregation, raveling, and loose material
 - c. Variance of more than 0.05 foot measured from the lower edge of a 12-foot straightedge
 - d. Uniform surface texture throughout the work limits
 - e. Repaired areas
2. Compliance with the quality characteristics shown in the following table:

FDR – L /FDR–C Acceptance Criteria Testing

Quality Characteristic	Test Method	Requirement
Cement application rate (lb/sq yd)	Calibrated tray or equal	Mix design rate \pm 4% variable
Relative compaction (% min, wet density)	California Test 231	97

302G. MATERIALS

302G.1 CONTENT

Lime shall comply with the latest specification for Hydrated Lime (ASTM C 207)

Cement shall comply with the latest specification for Portland cement (ASTM C 150, ASTM C1157, or AASHTO M 85 or blended hydraulic cements ASTM C 595 ASTM C 1157 or AASHTO M240.

302G.2 WATER

Notify the Engineer 7 days in advance of work if a water source other than potable water is used and perform testing for chlorides and sulfates.

302G.3 CORE BACKFILL MATERIAL

Material to fill cored holes for thickness measurements must be packaged rapid-hardening cementitious material under ASTM C928, Type R2 or R3.

302G.4 FDR-L /FDR-C GRADATION

The pulverized mixture of asphalt concrete and underlying material, and cement must comply with the grading requirements for the sieve sizes shown in the following table:

Sieve Size	Percentage Passing
3"	100
2"	95-100
1.5"	85-100

302H. CONSTRUCTION

302H.1 GENERAL

Do not start FDR-L /FDR-C activities if the ambient air temperature is below 40 degrees F or the road surface is below 40 degrees F. If the ambient air temperature falls below 40 degrees F during FDR-L/FDR-C activities, you may only compact and finish FDR-L / FDR-C.

Prior to the start of FDR activities, contractor will provide reference of existing facilities to Engineer for approval. The Contractor shall protect any shallow utilities, all manholes, valves covers, monuments and other structures.

If shallow utilities are discovered during potholing activities and within 6 inches vertically of new road section (AC/ FDR-L /FDR-C), the utility shall be jumped 10' on-center of utility. The jumped section shall be a total 6" asphalt section.

Before starting daily FDR-L / FDR-C activities, sweep the FDR-C area constructed the previous day to remove loose material and remove pavement markers. Maintain existing pavement footprint and do not infringe upon roadside ditches.

302H.2 EQUIPMENT

Do not interrupt traffic while servicing FDR-C equipment.

The FDR–C machine must have independent and interlocked systems for water and must include the following:

1. Digital electronic controller system
2. Pumping system
3. Spray bar system

Storage equipment for water must not leak and must be attached to the FDR-L / FDR-C machine with a tow bar and hose.

Mixing shall be accomplished in place, using single shaft or multiple shaft mixers.

Cement spreading equipment shall include fully enclosed skirt system to prevent cement from becoming airborne. The project will be shut down if cement becomes airborne and mitigation measure can not be implement to prevent a dust free situation.

Contractor shall limit FDR activities when winds can pose an issue to the cement or lime operation and a dust free operation can be maintained.

Lime and cement can be added in dry form. A spread shall be used to uniformly apply dry lime and cement in equal proportions.

The processed material shall be compacted with a combination of following: Static or vibratory sheep foot (initial compaction), and vibratory smooth-drum roller (finish compaction). The frequency and amplitude of vibrating rollers must be adjustable and exceed a force of 15 tons in vibratory mode.

Grading equipment must be a motor grader with automatic grade controls for profile elevation and cross slope.

302H.3 SURCACE PREPERATION

Before FDR–C activities start, prepare the existing roadway surface by:

1. Clearing foreign matter including vegetation
2. Removing standing water
3. Verify all utilities are of adequate depth to avoid conflict with the FDR operation and utility locations are referenced.
4. Referencing the existing profiles and cross slopes and submit the new proposed grades for the road centerline and edge of pavement, submit to R.E. for approval 10 days prior to start of work.
5. Marking the proposed longitudinal cut lines on the existing pavement as follows:

- a. Cut lines must coincide with points where the existing cross slope changes, approximately at the centerline and edge of traveled way
 - b. Cut lines must indicate the sequence of the cuts
- If excess material is to be stored adjacent to the shoulder, clear and dispose of the weeds, grass, and debris from the area.

302H.4 COLD PLANING

FDR-L/C: Asphalt material shall be mixed into the FDR-L activity and graded to finish grade and remixed with Cement.

FDR- C: Cold plane the roadway to a depth shown the plans to provide new depth of HMA section.

302H.5 SPREAD MATERIAL

Spread Lime or cement uniformly over the processed roadway surface width. Do not spread cement more than 30 minutes before mixing. Do not apply dry lime or cement in windy conditions that will result in dust outside the FDR–L/C area. The spread rate must be the mix design rate or the ordered rate in lb/sq yd per the describe percentage for each segment.

Do not spread cement and supplementary aggregate before pulverizing and compacting pulverized road section

302H.6 MIXING

Mix the pulverized roadway section and Lime/cement immediately after lime /cement is placed to the depth described in this section of the Special Provisions and shown in the Project Plans. For Lime and Cement combo shall include initial mix of lime day 1 and final mix of cement day 2 to create a firm cement treated base. The mixed material shall meet the following gradation conditions:

1. The final mixture (bituminous surface, granular base, and subgrade soil) shall be pulverized such that 100% passes the 3” sieve, at least 95% passes the 2-in. sieve, and at least 85% passes the 1.5” sieve. No more than 50% of the final mixed material shall be made of the existing bituminous material unless approved by the engineer and included in a mix design. Additional material can be added to the top or from the subgrade to improve the mixture gradation, as long as this material was included in the mix design.
2. The final pulverization test shall be made at the conclusion of mixing operations. Mixing shall be continued until the product is uniform in color, meets gradation requirements, and is at the required moisture content throughout. The entire operation

of cement spreading, water application and mixing shall result in a uniform pulverized asphalt, soil, cement and water mixture for the full design depth and width.

The overlap requirements in section 30-4.03D apply to mixing. With each cut, adjust the amount of water proportionally to the actual cut width. If an overlap is less than 4 inches, immediately back up and pulverize the deviation along the correct line without adding water or cement.

Water must be injected through the pulverizing machine. The injection rate of mixing water must be sufficient to produce the FDR-C material.

Mark where the center of the pulverizing drum stops. Start the following cut on this alignment at least 2 feet behind the mark.

Before compacting, remove solids larger than 3 inches in any dimension by hand.

302H.7 COMPACTION AND GRADING

The processed material shall be uniformly compacted to a minimum of 97% of maximum density based on a moving average of five consecutive tests with no individual test below 93%. At the start of compaction, the moisture content shall be within 2% of the specified optimum moisture. No section shall be left undisturbed for longer than 30 minutes during compaction operation. All compaction operation shall be completed within 2 hours between final mixing of the pulverized material with cement and completion of compaction with vibratory steel drum rollers

If the established grade will cause noncompliance with the thickness requirements, notify the Engineer.

If unsuitable material is encountered during construction, these localized areas of unsuitable material should be removed, disposed and replaced with excess pulverized base or new class II AB as directed by the engineer and shall be paid on force account.

302H.8 FINISHING AND MICRO CRACKING

The finished FDR-C surface must not vary more than 0.05 foot from the lower edge of a 12-foot straight edge laid in directions parallel and perpendicular to the centerline.

Immediately after compaction, apply water and roll with pneumatic-tired rollers or steel drum roller with no vibration. The finished surface must be free of ruts, bumps, indentations, segregation, raveling, and any loose material. All finishing operations shall be completed within 4 hours from start of mixing

Keep the compacted surface damp by lightly watering until tack coat is applied.

During the period from 48 to 72 hours after compaction, microcrack the surface by applying 3 single passes with a 12-ton vibratory steel drum roller at maximum amplitude travelling from 2 to 3 mph, regardless of whether asphaltic emulsion has been applied.

Contractor will maintain and moisture condition the finished surface before and after microcracking. Do not open to traffic until authorization from Engineer.

While open to traffic and before placing HMA, maintain the FDR– L/C surface free of ruts, bumps, indentations, raveling, and segregation. Repair damaged FDR–C material with minor HMA.

Immediately before placing AC, apply tack coat at a rate of 0.03 to 0.05 percent residual binder content.

Do not place AC until authorized

302H.9 CURING

Finished portion of the FDR base that are traveled on by equipment used in construction an adjoining section shall be protected in such a manner as to prevent equipment from marring or damaging completed work.

After completion of final finishing, the surface shall be cured by keeping the surface continuously moist for a period of 3 days, or until paved (if longer than 3 days), which a water spray that will not erode the surface of the FDR base. If curing material is used it shall be applied as soon as possible, but not later than 24 hours after completing finishing operation the surface shall be kept continuously moist prior to application of curing material.

For bituminous curing material, the FDR base surface shall be dense, free of all loose and extraneous materials, and shall contain sufficient moisture to prevent excessive penetration of the bituminous material. The bituminous material shall be uniformly applied to the surface completed cement-treated material. The exact rate and temperature of application for complete coverage, without undue runoff, shall be approved by the engineer. Should it be necessary for construction equipment or other traffic to use the bituminous covered surface before the bituminous material has dried sufficiently to prevent pickup, sufficient sand cover shall be applied before such use.

Sufficient protection from freezing shall be given the cement-treated material for 7 days after its construction or as approved by engineer.

302H.10 TRAFFIC

Completed portions of the FDR base can be opened immediately to low speed construction equipment, provided moist curing operation are not impaired and provided the FDR base is sufficiently stable to withstand marring or permanent deformation. If continuous moist curing is employed, the FDR base can be opened to all traffic after the 7 day moist curing period, provided the FDR base hardened sufficiently to prevent marring or permanent deformation. Portion of the FDR base that are traveled on by equipment used in construction an adjoining section shall be protected in such a manner as to prevent equipment from marring or damaging completed work

302H.11 PAYMENT

Full Depth Reclamation – Cement (1.17' Depth) shall be measured by the square yard per the specified depth shown on the plans. The quantities to be paid shall be to the specified dimensions of pulverizing regardless of the number of passes required to match with the depth required shown on the plans.

The Contractor shall measure and confirm with the engineer the total area of the full width pulverization prior to the resurfacing operation.

The contract price paid for **Full Depth Reclamation – Cement (1.17' Depth)** paid at the contract price per square yard (SY) for full depth reclamation, which shall include full compensation for furnishing all labor, materials, tools, equipment, for full depth reclamation- cement including submittals, quality control reporting, preoperation conference, water, surface preparation, verifying utilities are of adequate depth, cement spreading, mixing, compaction, staking, site layout, grade adjustments and control, fine grading, finishing, microcracking, maintaining moisture condition before and after microcracking and curing as described in the section and per the contract documents and no additional compensation will be made therefor

Full Depth Reclamation – Cement/Lime (1.17' Depth) shall be measured by the square yard per the specified depth shown on the plans. The quantities to be paid shall be to the specified dimensions of pulverizing regardless of the number of passes required to match with the depth required shown on the plans.

The contract price paid for **Full Depth Reclamation – Cement/Lime (1.17' Depth)** paid at the contract price per square yard (SY) for full depth reclamation, which shall include full compensation for furnishing all labor, materials, tools, equipment, for full depth reclamation- Lime including submittals, quality control reporting, preoperation conference, water, surface preparation, verifying utilities are of adequate depth, lime spreading, mixing, compaction, staking, site layout, grade adjustments and control, fine grading, finishing, microcracking, maintaining moisture condition and curing for first pass of FDR as described in the section and per the contract documents and no additional compensation will be made therefor

The contract price paid for **Mix Design (FDR-C and FDR-L)** paid at the contract price of Lump Sum (LS) for mix design (full depth reclamation-lime), which shall include full compensation for furnishing all labor, materials, tools, equipment, for mix design submittal, excavation, sampling, testing, backfill, pavement restoration as described in the section and per the contract documents and no additional compensation will be made therefor

The contract price paid for **Lime (Full Depth Reclamation – Lime)** paid at the contract price per ton (Ton) for cement (full depth reclamation-cement), which shall include full compensation for furnishing all labor, materials, tools, equipment, for cement including and trucking and placement as described in the section and per the contract documents and no additional compensation will be made therefor.

The estimated quantity of cement is for bidding purposes only. This item may be increased, decreased, or eliminated in its entirety based on field conditions evaluated by the Engineer, and no adjustment in the contract bid price or other contract items will be made therefor. The provisions of Section 9-1.06, “Changed Quantity Payment Adjustments,” of the Standard Specifications shall not apply.

The contract price paid for **Cement (Full Depth Reclamation – Cement)** paid at the contract price per ton (Ton) for cement (full depth reclamation-cement), which shall include full compensation for furnishing all labor, materials, tools, equipment, for cement including and trucking and placement as described in the section and per the contract documents and no additional compensation will be made therefor.

The estimated quantity of cement is for bidding purposes only. This item may be increased, decreased, or eliminated in its entirety based on field conditions evaluated by the Engineer, and no adjustment in the contract bid price or other contract items will be made therefor. The provisions of Section 9-1.06, “Changed Quantity Payment Adjustments,” of the Standard Specifications shall not apply.

END OF SECTION

SECTION 310 ASPHALT CONCRETE

310A. GENERAL

All Asphalt concrete (AC) work shall be as specified in Section 39, "Asphalt Concrete", of the Standard Specifications; these Technical Specifications; and the plans and typical sections.

310B. SUBMITTALS

The CONTRACTOR will be required to furnish the Engineer with a mix design for each type of asphalt concrete to be used on the project. The mix design shall include a list of material sources and a Certificate of Compliance signed by the material supplier or his representative indicating that the materials to be incorporated in the work fulfill the requirements of these specifications. This submission will be provided fifteen (15) calendar days or ten (10) working days prior to the start of work. If requested, the CONTRACTOR will also provide aggregate and binder samples or a plant produced mix sample for mix design verification.

310C. MATERIALS

310C.1 MIX TYPES

The asphalt concrete mix to be used will be as follows unless modified by the Engineer:

- A. Full Depth AC Plug: 3/4 inch Maximum, Type A, Medium – PG 64-16.
- B. Leveling Courses: 1/2 inch Maximum, Type A, Medium – PG 64-16.
- C. AC Overlay or AC Surface Courses: 1/2 inch Maximum, Type A, Medium – PG 64-16
- D. Jump Section: 3/4 inch Maximum, Type A, Medium – PG 64-16.

310C.2 BINDER TYPES

The asphalt grade shall be PG 64-16 conforming to Section 92, "Asphalts", of the Standard Specifications. The bitumen ratio shall not vary by more than 0.3% above or 0.3% below the value specified in the approved mix design.

310C.3 TACK COAT

Tack coat shall be utilized and shall be emulsified asphalt Grade RS-1h or SS-1h and shall conform to Section 94, "Asphaltic Emulsions", of the Standard Specifications and section 4-302 "Tack Coat" of these Technical Specifications.

310C.4 CONTRACTOR SUPPLIED MIX DESIGNS

The mix designs shall be prepared by laboratories and personnel with current Caltrans certification. The asphalt concrete mixtures shall conform to all of the provisions of Section 39 of the Standard Specifications and to the following requirements:

- A. The asphalt concrete air void content shall be between 3% minimum and 3.5% maximum and the S-value shall be 37 or greater.
- B. Up to 10% recycled asphalt pavement may be incorporated into the mix.
- C. In no event shall there be less than two percent passing the No. 200 sieve.

As a minimum, the mix design shall indicate the percentage passing for each specified sieve, the percent of asphalt, the laboratory compacted unit weight, the theoretical unit weight (Rice Gravity), and the stability of the mix to be used for each asphalt concrete mixture to be incorporated on the project. The mix design, with allowable tolerance for a single test, shall be used for job control.

310C.5 DELIVERY TICKETS

Each delivery ticket shall include information on the material type, binder type, oil content, and the mix design number. Material delivered to the project without such annotations shall be subject to rejection. No payments shall be made without load tickets and the acceptance of those tickets by the Engineer at the end of the day of delivery.

310D. CONSTRUCTION

310D.1 PAVING

A. SURFACE PREPARATION

The work shall consist of preparing the existing street surfaces prior to the commencement of paving. Such work shall include, but not limited to, removing raised pavement markers, removing thermoplastic traffic markings and legends, controlling nuisance water, sweeping, watering, and removing loose and broken asphalt concrete pavement and foreign material as specified in the Standard Specifications and these Technical Specifications, and as directed by the Engineer.

Existing concrete or asphalt concrete shall be cut in a neat line along the lip of gutter and in locations as designated on the plans or as indicated by the Engineer to a minimum depth of 0.50 foot with a power driven saw before the concrete or asphalt concrete is removed.

The CONTRACTOR shall locate all surface facilities by triangulation measurement in advanced of paving operations.

B. PRIME COAT

No prime coat is required.

C. TACK COAT

Tack coat shall be applied to all existing asphalt concrete or Portland cement concrete surface (vertical and horizontal) to be paved over. The tack coat shall conform to the requirements in Section 39 of the Standard Specifications and Section 11-1.09 herein.

All vertical edges to be paved against shall be tack coated. These include, but are not limited to, curb faces, gutter lips, gutter pans, curb faces, swale edges, cross gutter edges, and asphalt concrete edges.

The rate of tack coat shall be 0.15 gal/sy (80% emulsified asphalt and 20% water) approximately. The application of tack coat shall be approved by the Engineer prior to placing the mix. Tack coat shall be applied prior to placing the subsequent layer unless placed in the same day.

D. COLD JOINTS

All cold joints, both longitudinal and transverse, shall be heated with a torch immediately prior to paving. Cold joints include previous passes placed more than three hours prior. All cold joints shall be tack coated.

E. ASPHALT CONCRETE FILLS

Digout areas to receive full-depth AC stabilization shall be completed prior to performing paving work.

F. LAYOUT

The CONTRACTOR shall layout and mark the location of the edges of the surface course paving passes. The layout shall be made at least 2 hours prior to paving. The layout shall be approved by the Engineer prior to paving.

In all cases where practical, each lane shall be paved in a single pass. In tapered transition areas, the shoulder areas shall be paved first, and then the through lane shall be hotlapped immediately after the shoulder paving.

For paving which incorporates new quarter-points or grade breaks due to keycuts or other conditions, the CONTRACTOR shall provide equipment capable of adjusting to the new surface profile at the appropriate locations. The profile adjustments shall be within twelve inches of the actual quarter-point or grade break.

The CONTRACTOR shall take sufficient measurements during laydown to assure that the full design asphalt concrete layer depth is provided at each quarter-point, grade

break, or transition. Failure to provide the design depth at these areas shall result in rejection of the work. Correction of this rejected work will include milling out the new asphalt concrete from the road edge to the centerline or nearest inside lane line and repaving. The minimum length of the milled and corrected area shall be fifty feet.

The minimum ambient temperature to begin paving shall be 55 degrees F and rising.

G. ROLLING, COMPACTION AND PAYMENT REDUCTION

In addition to the requirements of Subsection 39-3.03, "Spreading and Compacting Equipment," of the Standard Specifications, the number of rollers required for each paving operation shall be such that all rolling for density can be completed before the temperature of the asphalt concrete mixture drops below 240 degrees Fahrenheit.

Breakdown rolling shall commence when the asphalt concrete is placed. Rolling shall be accomplished with the drive wheel forward and with the advance and return passes in the same line.

The CONTRACTOR shall compact the asphalt concrete to meet the compaction requirements between 91-97% of maximum theoretical density as shown in subsection 39-2.03 "Acceptance Criteria" of the Standard Specifications 2010. The compaction shall be computed for each lot, with a maximum lot size of 500 tons. Each street segment of less than 500 tons shall be its own unique lot.

Core density/nuclear gauge shall be done per CTM 375, "Determining the In-Place Density and Relative Compaction of Asphalt concrete Pavement Using Nuclear Gages".

310E. QUALITY CONTROL

310E.1 TOLERANCES

The finished asphalt concrete surface shall be flush with, to 1/4 inch (0.020 feet or 6 mm) above, the gutter lips.

The average pavement thickness shall be equal to the specified thickness for the project.

For total pavement thicknesses of less than four inches, the minimum allowable thickness will be 1/4 inch less than that specified.

Core densities shall be taken at a rate of no less than one core per 500 tons of mix.

If compaction fails by nuclear methods, then core density/nuclear gauge correlation and/or core densities shall be used to establish compaction.

When core density is used to determine compaction, all cores shall be paid for by the CONTRACTOR.

Compaction failing to meet the above criteria shall be subject to the payment reductions as shown in (Standard Specifications 2010) subsection 39-2.03, "Acceptance Criteria."

The CONTRACTOR shall have hand-compaction equipment immediately available for compacting all areas inaccessible to rollers. Hand-compaction shall be performed concurrently with breakdown rolling. If for any reason hand-compaction falls behind breakdown rolling, further placement of asphalt concrete shall be suspended until hand-compaction is caught up. Hand-compaction includes vibratory plates and hand tampers. Hand torches shall be available for rework of areas which have cooled.

After compaction, the surface texture of all hand work areas shall match the surface texture of the machine placed mat. Any course or segregated areas shall be corrected immediately upon discovery. Failure to immediately address these areas shall cause suspension of asphalt concrete placement until the areas are satisfactorily addressed, unless otherwise allowed by the Engineer.

The maximum asphalt thickness per lift is 3".

310E.2 SAMPLING

The Engineer may sample the asphalt concrete from truck beds at the plant, from the hopper of the spreading machine, or from the completed mat at the discretion of the Engineer. The CONTRACTOR shall facilitate the sampling process.

310F. MEASUREMENT AND PAYMENT

Deep Lift AC shall be paid for at the contract price per ton (Ton) for asphalt overlay and paving, which shall include full compensation for furnishing all labor, materials, tack coats, tools, equipment, for installing asphalt concrete per contract documents and no additional compensation will be made therefor.

AC Full Depth Conform shall be paid for under Section 400 Minor Concrete - Case A Curb Ramp, Modified Case A Curb Ramp, Case C Curb Ramp, Modified Case C Curb Ramp and no additional compensation will be made therefor.

2" AC Overlay shall be paid for at the contract price per ton (Ton) for asphalt overlay and paving, which shall include full compensation for furnishing all labor, materials, tack coats, tools, equipment, for installing asphalt concrete per contract documents and no additional compensation will be made therefor.

Payment for multiple lifts / passes to achieve desired asphalt thickness shall be included and no additional compensation will be made therefor.

Payment for Saw Cutting shall be considered as included in the price for the various contract items of work involved and no additional compensation will be made therefor.

Payment for Conforming to Existing shall be considered as included in the price for the various contract items of work involved and no additional compensation will be made therefor.

4.2” AC Overlay shall be paid for at the contract price per ton (Ton) for asphalt overlay and paving, which shall include full compensation for furnishing all labor, materials, tack coats, tools, equipment, for installing asphalt concrete per contract documents and no additional compensation will be made therefor.

Payment for multiple lifts / passes to achieve desired asphalt thickness shall be included and no additional compensation will be made therefor.

Payment for Saw Cutting shall be considered as included in the price for the various contract items of work involved and no additional compensation will be made therefor.

Payment for Conforming to Existing shall be considered as included in the price for the various contract items of work involved and no additional compensation will be made therefor.

END OF SECTION

SECTION 380 TRENCH PAVING

380A. GENERAL

Asphalt Concrete surfacing and the placing of, shall conform to the requirements of the Standard Specifications, City of Petaluma Construction Specifications, City of Petaluma Standard Trench Details, the plans, and these technical specifications.

380B. SUBMITTALS

Asphalt Concrete mix design for trench paving shall be submitted to the City by the Contractor prior to construction of any paving activities.

380C. MATERIALS

380C.1 ASPHALT CONCRETE / COLD PATCHING

Asphalt Concrete surfacing shall be Type A, ½-inch maximum, medium, PG 64-16 and shall conform to Section 39, "Asphalt Concrete," of the Standard Specifications and these Technical Specifications.

For Cold patch / temporary paving, use 1/2" maximum, medium grade aggregate and SC 3000 asphalt for use the same day, or SC 250 for use over a one-week period.

380C.2 SPREADING EQUIPMENT

When trench width is three feet or less, the asphalt concrete used for trench paving may be deposited directly from the haul vehicle into the trench. The asphalt shall then be raked smooth prior to compaction.

380D. CONSTRUCTION

The CONTRACTOR shall provide compaction of backfill and base material as the job progresses, each day. Temporary paving (2" minimum) will be placed each day over the work, leaving not more than 25 feet unpaved. The balance of the trench shall be covered with non-skid steel plates, capable of sustaining normal traffic loads. Temporary A.C. paving shall be used around all edges of steel plates.

Finished asphalt trench paving shall be even, smooth riding and have an appearance that is compatible to the surrounding surface. Final Trench Paving shall be 4 inches or match the existing pavement section, whichever is greater.

Upon placement of the last lift of Class 2 aggregate base, the CONTRACTOR shall cut the edges of pavement in a neat manner.

380E. QUALITY CONTROL

Trench subgrade and aggregate base must meet the minimum compaction as shown in the City of Petaluma Standard Trench Details, the plans, and these technical specifications.

380F. MEASUREMENT AND PAYMENT

Payment for trench paving shall be considered as included in the price for the various contract items of work involved and no additional compensation will be made therefor.

END OF SECTION

SECTION 400 MINOR CONCRETE

400A. GENERAL

New Portland cement concrete facilities including curbs, curbs and gutters, valley gutters, sidewalks, ADA curb ramps, and roadways, pads, and shallow utility backfill shall be constructed per the plans, Construction Standard 200 Series, and these specifications at the locations indicated on the plans or as directed by the Engineer.

The CONTRACTOR shall furnish all materials for concrete and grout work in accordance with the provisions of this Section and shall form, mix, place, cure, repair, finish, and do all other work as required to produce finished concrete and grout in accordance with the requirements of the Contract Documents.

400B. SUBMITTALS

Submittals shall be provided to confirm that material to be used comply with information specified herein. The CONTRACTOR shall furnish a concrete mix design to the Engineer at least ten working days prior to the start of the work.

Mix Designs: Prior to beginning the Work, the CONTRACTOR shall submit to the ENGINEER, for review, preliminary concrete mix designs which shall show the proportions and graduations of all materials proposed for each class and type of concrete specified. The mix designs shall be designed by an independent testing laboratory acceptable to the ENGINEER. All costs related to such mix design shall be borne by the CONTRACTOR. This Specification sets the minimum requirements for mix design that meets all requirements specified herein.

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. The remaining portions of the paragraph not underlined will signify compliance on the part of the CONTRACTOR with the specifications. The submittal shall be accompanied by a detailed, written justification for each deviation. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

400C. MATERIALS

400C.1 GENERAL

Concrete shall conform to the provisions of Section 90 of the Standard Specifications and these special provisions.

Where new concrete is placed adjoining existing concrete, steel dowels (No. 4 x 20 inch) shall be installed at 24 inches o.c. into existing concrete with six-inch embedment. The dowels shall be epoxy grouted.

Concrete shall contain one (1) pound of lampblack per cubic yard of concrete to match existing concrete

General Concrete Facilities including curbs, gutters, and sidewalk and ADA curb ramps shall meet the following requirements:

- Compressive Strength: 3,000 psi @ 28 days
Polypropylene Fiber
Reinforcement: 1.5 lbs/cy (0.01% by volume), ¾ inch or 1-1/2 inch length
- Maximum Slump: 4 inches
- Steel Reinforcement: 60 ksi

Heavy Vehicular Facilities including valley gutters, driveways, and alley entrances and shallow utility backfill shall meet the following requirements:

- Compressive Strength: 2000 psi @ 3 days,
4000 psi @ 28 days
Polypropylene Fiber
Reinforcement: 3.0 lbs/cy (0.02% by volume), 1-1/2 inch minimum length
- Maximum Slump: 4 inches
- Steel Reinforcement: 60 ksi

Lean concrete shall have a minimum 28-day compressive strength of 2,000 psi, a maximum aggregate of 3/4 inches, a minimum of 4 sacks of cement per cubic yard, and a maximum water to cement ratio of 0.60 by weight.

400C.2 FORMS

Concrete forms shall be metal, wood, plywood, or other approved material that will not adversely affect the concrete and will facilitate placement of concrete to the shape, form, line, and grade indicated. Metal forms shall be an approved type that will accomplish such results.

Plywood for concrete formwork shall be new, waterproof, synthetic resin bonded, exterior type Douglas Fir or Southern Pine plywood manufactured especially for concrete formwork.

Lumber shall be Douglas Fir or Southern Pine, construction grade or better.

400C.3 REINFORCEMENT STEEL

Reinforcement steel shall be deformed bars conforming to ASTM A615 Grade 60 or ASTM A706.

400C.4 CONCRETE

Cement: Portland Cement Type II conforming to ASTM C150.

Water: Clean and free from oil, acid, alkali, organic matter, or other deleterious substances and shall contain not more than 50 ppm chlorides as Cl no more than 50 ppm sulfates as SO_4^{-2} .

Aggregates:

Natural aggregates shall be free from deleterious coatings, conforming to ASTM C33, together with all referenced ASTM Standard Specifications, except as modified herein. Aggregates shall not be potentially reactive as defined in Appendix XI of ASTM C33. Aggregates shall be thoroughly and uniformly washed before use.

Fine aggregates shall conform to ASTM C33. Materials finer than the 200 sieve shall not exceed 4 percent. Use only clean, sharp, natural sand.

Coarse aggregate shall be: 1) natural gravels, 2) a combination of gravels and crushed gravels, 3) crushed stone, or 4) a combination of these materials containing no more than 15 percent flat or elongated particles (long dimension more than five times the short dimension). Materials finer than the 200 sieve shall not exceed 0.5 percent.

Ready-Mixed Concrete: Ready-mixed concrete shall conform to the requirements of ASTM C94.

400C.5 CURING COMPOUND

Liquid membrane-forming curing compound shall be clear or translucent, suitable for spray application and shall conform to ASTM C309, Type 1.

400C.6 EXPANSION JOINT FILLER

Expansion joint filler shall be ½-inch thick, preferred asphalt-impregnated, expansion joint material, conforming to ASTM D994.

400C.7 GROUTS

Epoxy Grout. Epoxy grout for bonding reinforcing bars to existing concrete structures shall be manufactured by, or approved equal:

- A. Adhesive Engineering, Concrete No. 1001
- B. Sika Chemical Corp., Sikastix 350, 370, or 390, as applicable

Ordinary Type Grout (Dry Pack). One part portland cement to 2 parts fine sand. Add sufficient water to form a damp formable consistency.

Non-Shrink Grout. Non-shrink grout shall be nonmetallic, nongas-liberating type, as manufactured by, or approved equal:

- A. Master Builders, Master Flow 713
- B. UPCO Company, UPCON, High Flow

Cement Grout. Cement grout shall be composed of one part cement, two parts sand, and the minimum amount of water necessary to obtain the desired consistency. Where needed to match the color of adjacent concrete, white portland cement shall be blended with regular cement as needed. The minimum compressive strength at 28 days shall be 4000 psi.

400C.8 BONDING AGENT

Bonding agent shall be manufactured by, or approved equal:

- A. W. R. Grace and Company, Cambridge, MA
- B. Sika Chemical Corp., Lyndhurst, NJ
- C. Adhesive Engineering Company, San Carlos, CA

Product shall be recommended by manufacturer as suitable to meet job requirements with regard to surface, pot life, set time, vertical or horizontal application, forming restrictions, etc. Furnish manufacturer's specific instructions for this job application, and obtain ENGINEER's approval prior to application.

400C.8 TRUNCATED DOMES

Prefabricated truncated dome panels shall be used. The panels shall be **"FEDERAL YELLOW"** (unless specified otherwise on the plans) and shall be cast-in-place ("wet set") style at all locations. The CONTRACTOR shall submit for review the manufacturer's information at least 14 days prior to placement of the panels for approval by the City.

400D. CONSTRUCTION

400D.1 EARTHWORK

Excavation, backfill and compaction shall be in accordance with Section 80, Earthwork.

400D.2 EXISTING CURB & GUTTER, SIDEWALK, AND ASPHALT REMOVAL

The CONTRACTOR shall only be permitted to remove concrete and/or asphalt on one side of the street at a time. The other side of the street may be removed only after the concrete and asphalt have been installed and opened to the public.

All concrete which is to be removed from curb and gutter areas shall be removed to the nearest construction joint or as directed by the Engineer.

All concrete which is to be removed from sidewalk areas shall be removed to the nearest transverse score mark across the full width of sidewalk or construction joint as directed by the Engineer.

Burying of broken concrete within the limits of the project will not be allowed.

Reinforcing steel may be encountered in portions of the concrete to be removed and no additional allowance will be made for the removal of such steel.

Any irrigation lines encountered shall be securely capped, marked and accurately noted on as-built drawings.

400D.3 SUBGRADE

After the subgrade is prepared, moisture conditioned, and compacted to 90% relative compaction at zero to three percent over optimum, the CONTRACTOR shall continuously maintain the subgrade in a uniform condition at the moisture content obtained during subgrade compaction until the concrete is placed.

400D.4 FORMING

Construct all form work in accordance with ACI 347. Before placing the concrete, the contact surfaces of forms shall be coated with a suitable non-staining form coating compound or shall be given two coats of nitrocellulose lacquer. All excess coating shall be removed by wiping with cloths.

400D.5 TOLERANCES

The maximum variation from design elevation shall not exceed +/- 0.02 feet. In some instances, particularly in critical drainage areas, tolerances may be reduced to zero. Concrete facilities shall be installed to maintain or provide positive drainage. Questions regarding applicable tolerances shall be directed to the Engineer forty-eight hours in advance of the work.

When shown on the drawings, the concrete shall be set at the design elevations. When existing facilities are to be removed and replaced, they shall conform to the existing elevations and grades. Generally, this will be at a straight line between the start and end points of the removal, unless otherwise noted on the plans.

400D.6 REINFORCEMENT

All reinforcement shall be provided as indicated together with all necessary ties, spacers, supports, and other devices necessary to install and secure the reinforcement properly. All reinforcement, when placed, shall be free from loose rust, scale, oil, grease, and other coatings and foreign substances that would reduce or destroy the bond. Use of wire mesh is prohibited.

Curb and Gutter / Vertical Curb: Reinforcement shall be #4 bar 24" on-center per our City Standards

Sidewalk: Reinforcement shall be #3 bar 24" on-center each way per our City Standards.

Curb Ramp: Reinforcement shall be #3 bar 24" on-center each way per our City Standards.

Driveway / Valley Gutter: Reinforcement shall be #3 bar 24" on-center each way per our City Standards.

400D.7 MIXING

Concrete mixing shall conform to ACI 304, current edition, and to the other requirements specified herein.

Concrete shall be discharged at the job within 1-1/2 hours after the water has been added to the cement and aggregates mixture. Concrete may be machine mixed at the job site or ready mixed at the CONTRACTOR's option, and shall conform to the following requirements:

1. Site Mixing: Concrete produced at the site shall be mixed in a batch mixer with a capacity of not less than 1/2 cy. The minimum mixing time for each batch (from the time when all solid materials and water are in the drum) shall be 1-1/2 minutes for mixers of 1 cy capacity or less; for mixers of larger capacity, the mixing time shall be increased 30 seconds for each additional 1/2 cy or fraction thereof. The mixer shall revolve at a uniform peripheral speed of about 200 rpm. The entire batch shall be discharged before the mixer is recharged.

2. Ready Mixed Concrete: All concrete constituents for ready mixed concrete shall be batched at the central plant. All central plant and rolling stock equipment and methods shall conform to the requirements of ASTM C94, as applicable.

400D.8 SCHEDULING

The CONTRACTOR shall schedule the work so that the replacement of sidewalks and curbs and gutters at driveways shall be completed within three (3) days of demolition operation start. The CONTRACTOR may use seven (7) sack mixes (Class D) with no more than one (1) percent calcium chloride to speed up the concrete set.

The CONTRACTOR shall notify the affected business owners or residents in writing at least forty-eight (48) hours prior to starting the work. All local business and residents shall be provided access at all times.

The CONTRACTOR shall schedule his operation so that all other concrete shall be poured within five (5) days after excavation or by the weekend, whichever is earlier. Failure to do so will result in a liquidated damage of \$500 per location per occurrence.

400D.9 PLACING

No concrete shall be placed after there is evidence of initial set. Concrete placement will not be permitted when weather conditions prevent proper placement and consolidation. Consolidation of concrete shall be with internal concrete vibrators supplemented by handspading, rodding, and tamping. Vibrating equipment shall be adequate to thoroughly compact the concrete. Concrete shall be compacted, screeded to grade, and prepared for the specified finish.

In general, adding water to the surface of the concrete to assist in finishing operations shall not be permitted.

Before final finishing is completed and before the concrete has taken its initial set, the edges shall be carefully finished with the radius shown on the plans or a radius to match the existing construction.

Concrete shall be thoroughly consolidated against and along the faces of all forms and adjacent concrete. After the forms are removed, excess concrete below the form surface shall be removed to be flush with the form face.

400D.10 CURING

Curing shall begin as soon as free water has disappeared from concrete surfaces after placing and finishing. Curing materials shall be applied and maintained so as to protect the concrete from moisture loss. Water used in curing shall be potable. Curing shall be accomplished by moist curing method. Unformed surfaces shall be covered with absorptive

materials wetted before placing. Absorptive materials or forms used in curing shall be kept continually wet.

400D.11 CLEANUP AND BACKFILL

After the concrete is placed, cured, and the forms have been removed, the CONTRACTOR shall clean the site of all concrete and forming debris.

After curing has been completed and the forms have been removed from the driveway, sidewalk, or ADA curb ramp, the void between the new concrete and the existing parkway shall be filled with clean native material and the entire parkway left in a clean and orderly condition.

For concrete removed but not replaced, the resulting void after excavation shall be backfilled with clean native material or topsoil.

400E. QUALITY CONTROL

Without limiting the generality of other requirements of these Specifications, all work specified herein shall conform to or exceed the requirements of the Building Code and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of this Section; provided, that for Building Codes, the latest edition of the code, as adopted as of the date of award by the agency having jurisdiction, shall apply to the Work.

ACI 304R Guide for Measuring, Mixing, Transporting and Placing Concrete

ACI 347R Guide to Formwork for Concrete

ASTM A615 Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

ASTM C33 Concrete Aggregates

400E.1 FIELD SAMPLING AND TESTS

The CONTRACTOR shall be responsible for the quality of the materials and workmanship of the placement of the concrete. Sampling, preparation of test specimens, and testing will be the ENGINEER's responsibility.

400E.2 SLUMP

Concrete consistency shall be determined by slump tests in accordance with ASTM C143. At least one test shall be made at the commencement of the concrete placement and at the time standard test cylinders are molded.

Tests will be performed by the ENGINEER

400F. MEASUREMENT AND PAYMENT

NOTE FOR ALL ITEMS: Any irrigation lines encountered shall be securely capped, marked and accurately noted on as-built drawings.

Minor Concrete, Curb and Gutter shall be paid for at the contract unit price **per linear foot (LF)** of actual concrete installed, which shall be full compensation for mobilization, site preparation and site clean-up, installation of concrete curb and gutter, removal and disposal of existing curb and gutter, temporary conforms, staking/ layout, site grubbing, excavation and grading, including roadway excavation to reduce curb radii, root pruning, backfilling, 6" class II aggregate base, compaction, dowelling, reinforcing bar addition of lamp black paint, pedestrian and traffic control, and restoration of any damages including furnishing all labor, materials, tools, equipment and incidentals necessary to do all the work involved thereof and as directed by the Engineer, complete, in place, and accepted, and no additional compensation will be allowed therefor.

Minor Concrete - Vertical Curb shall be paid for at the contract unit price **per linear foot (LF)** of actual concrete installed, which shall be full compensation for mobilization, site preparation and site clean-up, installation of concrete curb and gutter, removal and disposal of existing curb and gutter, staking/ layout, site grubbing, excavation and grading, including roadway excavation to reduce curb radii, root pruning, backfilling, 6" class II aggregate base, compaction, dowelling, reinforcing bar addition of lamp black paint, two (2) foot asphalt concrete conform, pedestrian and traffic control, and restoration of any damages including furnishing all labor, materials, tools, equipment and incidentals necessary to do all the work involved thereof and as directed by the Engineer, complete, in place, and accepted, and no additional compensation will be allowed therefor.

Minor Concrete –Driveways shall be paid for at the contract unit price **per square foot (SF)** of actual concrete installed, which shall include full compensation for removing and placing PCC sidewalk complete, in place, and shall include, but not limited to, demolition, saw cutting, excavation for placement of aggregate base, subgrade preparation; furnish and place 4" thick aggregate base; dowels to existing concrete: reinforcing bars; furnish and place concrete; weakened plane, construction joints and scoring, protection from vandalism, removal and disposal of existing sidewalks, and all other work required to complete work in place.

Minor Concrete – Sidewalks shall be paid for at the contract unit price **per square foot (SF)** of actual concrete installed, which shall include full compensation for removing and placing PCC sidewalk complete, in place, and shall include, but not limited to, demolition, saw cutting, excavation for placement of aggregate base, subgrade preparation; furnish and place 4" thick aggregate base; dowels to existing concrete: reinforcing bars and wire mesh where required; furnish and place concrete; weakened plane, construction joints and scoring, protection from vandalism, removal and disposal of existing sidewalks, and all other work required to complete work in place.

Minor Concrete – Valley Gutter shall be paid for at the contract unit price **per square foot (SF)** of actual concrete installed, which shall include full compensation for removing

and replacing concrete valley gutter or asphalt complete, in place, and shall include, but not limited to, demolition, saw cutting, excavation for placement of aggregate base, subgrade preparation; furnish and place 8" thick aggregate base; dowels to existing concrete: reinforcing bars; furnish and place concrete; weakened plane, construction joints and scoring, protection from vandalism, removal and disposal of existing valley gutters, and all other work required to complete work in place.

Minor Concrete – Bus Pad shall be paid for at the contract unit price **per square foot (SF)** of actual concrete installed, which shall include full compensation for removing asphalt and placing 8" PCC bus pad, in place, and shall include, but not limited to, demolition, saw cutting, excavation for placement of aggregate base, subgrade preparation; furnish and place 8" thick aggregate base; dowels to existing concrete: reinforcing bars and wire mesh where required; furnish and place concrete pad and curb; weakened plane, construction joints and scoring, protection from vandalism, removal and disposal of existing sidewalks, capping encountered irrigation lines at work limit, and all other work required to complete work in place.

Case A Curb Ramp, Modified Case A Curb Ramp, Case C Curb Ramp, Modified Case C Curb Ramp shall be paid for at the contract unit **price each (EA)**, which shall include full compensation for mobilization, site preparation and site clean-up, installation of temporary AC to provide a safe path of travel at all times, installation of a concrete curb ramp, removal and disposal of existing concrete within the ramp location and entire curb return including roadway excavation to reduce curb radii, ramp lay out, staking, necessary grade adjustments to conform to existing conditions and ADA requirements, excavation for placement of aggregate base, subgrade preparation, furnish and place 4" thick aggregate base, reinforcing steel, furnish and place concrete, furnish and place truncated domes, weakened plane, placing landscape soils, relocation and adjustment of utility boxes, deepened curbs, removal, construction joints and scoring, protection from vandalism and all other work required to complete the work in place. Modified Case A shall include an six (6) foot wide truncated domes in lieu of a five (5) foot wide truncated domes which shall include full compensation for removal and disposal of fence posts, and shall include all work necessary to furnish and install the limit of work as shown Section VII and shall extend to the back of sidewalk regardless of the width of the existing sidewalk and shall include the curb and gutter in front of the ramp on the entire curb return, five (5) foot wide 6" thick asphalt concrete or concrete gutter conform (match existing) as shown on the plan, the integral/retaining curb at ramps (where needed), ramp wings, the landing behind the ramp to the back of sidewalk (to the grade break), backfill of landscape planting mix, retaining curbs on the back of ramp and sidewalk, and all of the concrete to be replaced that is damaged or removed during the curb ramp installation. In addition, curb ramp limits shall also extend to the closest extension score marks or expansion joints at the grade break beyond the landing.

END OF SECTION

SECTION 510
RECYCLED WATER FIRE HYDRANTS AND RECYCLED WATER MAIN

510A. GENERAL

All water mains and related appurtenances shall conform to the City of Petaluma's Water System Design Guidelines and Construction Standards, the plans, and these Technical Specifications.

510B. SUBMITTALS

Submittals shall include, but not limited to the following;

- A. Manufacturer (submit one manufacturer)
- B. Material specification, including but not limited to AWWA, ASTM, UL etc. references
- C. Material sample (when required)

The Contractor shall site the contract section, water system design guidelines, and construction standard the submittal to be in compliance with.

510C. MATERIALS

Prior to use the contractor must notify the Engineer in writing of all materials to be permanently incorporated into the project in accordance with the contract documents.

Materials to be permanently incorporated into the project shall be verified and approved by the Engineer. Material approval may be by testing or specific evaluation of the product against the specifications, water system design guidelines and these technical specifications. Testing or evaluation to be performed prior to the materials being incorporated into the project and should be done prior to arriving at the project site.

All materials and articles incorporated into the permanent Work:

- A. Shall be new, unless the Special Provisions, Technical Specifications, project plans permit otherwise;
- B. Shall meet the requirements of the Contract Documents and be approved by the Engineer;
- C. May be inspected or tested at any time during their preparation and use; and
- D. Shall not be used in the Work if they become unfit after being previously approved.

Request for approval of substitute materials shall be the decision of the Engineer.

The Engineer shall have the final decision of material use/incorporation at any time throughout the project duration.

510C.1 WATER MAIN

The water main shall be of the following material unless otherwise shown in the plans.

- A. Poly Vinyl Chloride (PVC). PVC shall conform to AWWA C900 and C905, purple in color. All PVC shall be DR 18 minimum.
- B. Fitting three (3) inches and larger shall be cement lined ductile iron as specified in the City Water System Design and Construction Standards.
- C. All buried PVC Pipe shall be installed with conductive tracer attached to the top of the exterior of the pipe.

510C.2 GATE VALVES

- A. Gate valves shall conform to the City Water System Design and Construction Standards and these Special Provisions, and shall be “AWWA approved” non-rising stem Clow Resilient Wedge Gate Valve, American Flow Control Series 2500 Resilient Wedge Gate Valve, or approved equal. All bolts, nuts and washers shall be Type 316 stainless steel. All internal and external surfaces of the valve body and bonnet shall have a fusion bonded epoxy coating, complying with ANSI/AWWA C550, applied electro- statically prior to assembly.
- B. All gate valves and couplings or mechanical joint bolts shall require corrosion protection. All bolts, nuts, washers and tiebacks shall be stainless steel type 316 conforming to ASTM A320. All fittings and valves shall be poly-bagged and taped with 10 mil minimum thick polyethylene.

510C.3 RESTRAINED COUPLING

- A. Restrained couplings are placed in pipelines to join plain ends of the same or dissimilar materials and provide axial restraint. Place restrained couplings as shown on the Contract Drawings.
- B. Manufacturer shall be EBAA Iron Inc. Series 3800 “MEGA-COUPLING” or approved equal. Install per manufacturer’s instructions.
- C. All buried Pipe shall be installed with conductive tracer attached to the top of the exterior of the pipe

510C.4 MECHANICAL JOINT RESTRAINT

- A. Mechanical joints restraints shall be when connect pipe to a mechanical joints.
- B. Manufacturer shall be EBAA Iron Inc., or approved equal

510C.5 RESTRAINED JOINTS

- A. Restrained joints are placed in pipelines to restrain push on joints and ensure the pipeline will not separate at the joint during pressure spike and water hammer events. Place restrained joints as shown on the Contract Drawings.
- B. Manufacturer shall be EBAA Iron Inc., or approved equal

510C.6 FIRE HYDRANT

- A. Fire hydrants shall conform to City of Petaluma Standards. Recycle water hydrants shall be painted purple.
- B. Fire hydrants shall have a "Breakable Flange Unit" manufactured by American AVK with breakable stainless steel bolts. The Breakable Flange shall be set so that it remains 2" above the concrete finished grade. The CONTRACTOR shall contact American AVK Co., 2155 Meridian Blvd., Minden, NY 89423 (Telephone: 775-552-1400) for information about the Breakable Flange Units.

510D. CONSTRUCTION

510D.1 POTHOLING

The locations of the existing underground utilities shown on the plans are approximate only. The CONTRACTOR shall verify the exact locations of those facilities in the field by potholing, probing, or other means, which will locate and identify the facility at the locations designated in field by the ENGINEER, at least seven (7) working days prior to the installation of pipeline main. No compensation for right-of-way delay other than time extension shall be given. Neither trench excavation nor pipe laying shall be performed until all potholing has been completed and the ENGINEER has reviewed the potholing information as a required submittal. Contractor may submit request to perform potholing with less than seven (7) days before installation work to commence. In the event that the City grants this request, no delay or idle time will be granted for any utilities not located or not marked during the work. In addition, the Contractor shall negotiate with the City for a reduction in price of the approved bid price for potholing.

510D.1 PIPE LAYING

Unless otherwise approved by the ENGINEER, the depth of the cover over the new water main from finished grade shall be as shown on the plans or a minimum of thirty-six (36) inches. In case of vertical conflict between the proposed water main and existing or proposed utilities, sewer main/laterals, the proposed water main shall be installed/roped within the manufacturer's recommended maximum allowable deflection to clear the other utilities, and still maintain at least thirty-six (36) inches cover. No additional payment for "over-excavation and backfill" will be made if the additional excavation does not exceed eighteen (18) inches.

Where the new water main crosses over a sewer main or sewer laterals with less than twelve (12) inch separation, the CONTRACTOR shall center a full length of pipe (without any joints in between) on the sewer main in accordance with the detail shown on CITY Standard Plan No 855.03. Where a new water main crosses under a sewer main or sewer lateral, the CONTRACTOR shall install a full length of pipe for water and remove and replace the sewer main or lateral with a ductile iron segment pipe. No additional compensation will be made for installation of ductile iron pipe for crossings. Water drops shall be per City Standards.

Transitions between pipes manufactured from different materials shall be as approved by the ENGINEER. Adapters between PVC and ductile iron pipe shall be ductile iron mechanical joint solid sleeve manufactured by Tyler Pipe, Power Seal, or approved equal. All bolts, nuts, and washers shall be stainless steel type 316.

The CONTRACTOR shall at all times have on hand sufficient pumping equipment and machinery in good working condition to pump ground water if encountered, or should any emergency arise caused by construction work. During pipe laying and concrete pouring and until the concrete has set hard, excavations shall be kept free of water. The detail of unstable trench shown on Standard Trench Details No. 852 shall be used if ground water and/or mud are encountered in the trench.

510D.2 TRENCH BACKFILL

Trench backfill and bedding materials and placement for all locations shall conform to the City of Petaluma's Water System Design and Construction Standards and as specified in these Special Provisions.

510D.3 TESTING AND CHLORINATION

Testing shall conform to City Water System Design and Construction Standards. No pipe installation will be accepted until the leakage in each section is nil and until the bacterial test passes.

All lines, mains, and branches shall be sterilized by chlorination in accordance with the water main and water services shall be tested concurrently. Chlorination of the pipe line may be done in conjunction with the hydrostatic test.

All costs involved in testing water mains and services including laboratory fees, all required appurtenances and temporary blow-off assemblies shall be included in the price paid for water main.

510D.4 TIE-INS

All water main tie-ins shall be made under the inspection of City Department of Public Works and Utilities personnel. The CONTRACTOR shall give the CITY a minimum of seventy-two (72) hour notice of a request for shutdown of the City water system in order to make connections, hot taps or abandonments to the main. Tie-in connection between the new water main and existing water main shall be according to the Plans and field conditions, and shall comply with the City Standard Guidelines and City Standard Details.

Water lines shall not be connected to the City's water system until lines have been pressure tested, chlorinated and approved by the City Department of Public Works and Utilities.

During the water main tie-in the interior of all appurtenances being installed shall be thoroughly swabbed with a strong HTH solution prior to installation. The CONTRACTOR shall exercise all necessary precautions to prevent the entrance of trench water or any other foreign material into the water main and shall conduct all operations in accordance with the most stringent AWWA sanitation practices.

Due to the city's aging water system it should be anticipated by the contractor that a complete shutdown of the city's water system of the location to be tied-in may not be possible. The contractor may experience a partially pressurized water system during the course of work to be performed. The contractor shall have sufficient pumping equipment in good working condition to minimize water accumulation in the trench. Dewatering of

the trench will be necessary and any discharge to the city's sewer system will require a discharge permit from the city's wastewater treatment facility.

510D.5 SHUTDOWNS AND VALVE TURNING

The CONTRACTOR shall perform all work so as to cause minimum inconvenience to residents and in no event will the CONTRACTOR be permitted to shut off water service to residents without the ENGINEER'S approval.

All shutdowns and valve turning operations shall be performed by City Department of Public Works and Utilities personnel only.

Before shutdown of water service and any connections made, the CONTRACTOR shall secure approval from the ENGINEER and show that all necessary labor, equipment, and materials (especially pipe and fittings, nuts, bolts, gaskets, etc.) are on the job site and ready for use.

The CONTRACTOR shall consult with the ENGINEER regarding location, time, date and duration of any planned shutdown. A maximum of three (3) hours may be allowed with the ENGINEER'S approval. No shutdown on Monday or Friday shall be allowed. "Door" hanger notices are to be delivered by the CONTRACTOR to all customers to be affected by the planned shutdown a minimum of forty-eight (48) hours prior to the shutdown. Door hangers will be provided by the Department of Public Works and Utilities.

510D.6 FIRE HYDRANT ASSEMBLY

Installation of fire hydrant assembly shall be at locations as shown on the project plans. Minor location adjustments may be necessary to avoid underground utilities as necessary.

The fire hydrant assembly shall include at minimum tee fitting and flanged gate valve, ductile iron pipe, bury, riser spool, breakable flange unit and fire hydrant. Installation shall be per these project contract documents.

Installation shall be per manufacturer's specifications and shall conform to city standard 857.

Fire hydrants shall be painted safety yellow color using Rust-Oleum High Performance V7400 System 340 VOC DTM Alkyd Enamel at the manufacturing plant and shall be

Clow 865, American AVK2420, or equal. Commercial and residential fire hydrants shall conform to city standard 857.

New fire hydrants shall have a "Breakable Flange Unit" manufactured by American AVK with breakable stainless steel bolts. The Breakable Flange shall be set so that it remains 2" above the concrete finished grade. The CONTRACTOR shall contact American AVK Co., 2155 Meridian Blvd., Minden, NY 89423 (Telephone: 775-552-1400) for information about the Breakable Flange Units.

The requirements of leakage and bacterial testing for water services shall be the same as and in conjunction with water mains.

The interior of all appurtenances being installed shall be thoroughly swabbed with a strong HTH solution prior to installation. The CONTRACTOR shall exercise all necessary precautions to prevent the entrance of trench water or any other foreign material into the water main and shall conduct all operations in accordance with the most stringent AWWA sanitation practices.

A blue fire hydrant pavement marker of Stimsonite 88 or equal shall be installed in the street, marking the location of hydrant six (6) inches from the centerline on the hydrant side of the centerline. Immediately after application of the adhesive, pavement markers shall be placed in position and pressure applied until firm contact is made with the pavement

510D.7 ABANDON / REMOVE WATER MAIN

Abandonment and removal of the existing water lines shall not be done until the new lines are ready for use and all existing water services are transferred to the new main. The abandonment shall include abandoning the water main including placement of grout in mains larger than 4-inches, removal of all valve cans, lids and concrete rings along water main.

All valve boxes on the abandoned mains shall be removed and plugged with a minimum of three (3) inches of Type A hot mix asphalt over Class 2 aggregate base compacted to ninety-five (95%) percent relative compaction.

510E. MEASUREMENT AND PAYMENT

6" Recycled Water Main will be paid for at the contract price per **Linear Foot (LF)**, which price shall include full compensation for furnishing all labor, materials, tools,

equipment, and doing all the water main and all fittings complete in place, including surveying, staking, locating, saw-cutting, demolition of existing asphalt paving/concrete, excavation, disposal of debris, pipe and pipe laying, pipeline trench dewatering, furnishing and placing backfill, bedding, temporary and permanent asphalt trench paving, asphalt trench or concrete paving up to the finish grade, replacement of raised pavement markers in areas not overlaid or reconstructed, hydrostatic testing of the water main and appurtenances, chlorination of pipe line and appurtenances, purging water main prior to bacteria sampling, furnishing and installing of fittings, and reducers, cutting, handling, and disposal of asbestos cement pipe, thrust blocking and/or restrained joints, disposal of all chlorinated water by the Contractor, water main component reporting, construction water and all work involved in its obtainment, development and distribution, cleaning and flushing the water mains, and any other work required for constructing water mains not specifically enumerated on the plans or in these specifications and no additional allowance will be made therefore.

The linear footage of water pipe to be used in computing payment shall be determined by measuring the total length of pipe installed in its final position.

Full compensation for thrust blocking and/or restrained joints shall be considered as included in the prices paid for various contract items and no additional allowance will be made therefore.

Full compensation for all staking, surveying, and locating shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefor.

Full compensation for all tees and blind flanges shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for hydrostatic testing of the water main and appurtenances shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for chlorination of pipe line, appurtenances, and purging water main prior to bacteria sampling shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for excavation, furnishing and placing backfill, asphalt surfacing/trench paving, shall be considered as included in the prices paid for the various contract items of work and no additional allowance will be made therefor.

Full compensation for thrust/anchor blocking and restrained joints shall be considered as included in the prices paid for various contract items and no additional allowance will be made therefore

12" Recycled Water Main will be paid for at the contract price per **Linear Foot (LF)**, which price shall include full compensation for furnishing all labor, materials, tools, equipment, and doing all the water main and all fittings complete in place, including surveying, staking, locating, saw-cutting, demolition of existing asphalt paving/concrete, excavation, disposal of debris, pipe and pipe laying, pipeline trench dewatering, furnishing and placing backfill, bedding, temporary and permanent asphalt trench paving, asphalt trench or concrete paving up to the finish grade, replacement of raised pavement markers in areas not overlaid or reconstructed, hydrostatic testing of the water main and appurtenances, chlorination of pipe line and appurtenances, purging water main prior to bacteria sampling, furnishing and installing of fittings, and reducers, cutting, handling, and disposal of asbestos cement pipe, thrust blocking and/or restrained joints, disposal of all chlorinated water by the Contractor, water main component reporting, construction water and all work involved in its obtainment, development and distribution, cleaning and flushing the water mains, and any other work required for constructing water mains not specifically enumerated on the plans or in these specifications and no additional allowance will be made therefore.

The linear footage of water pipe to be used in computing payment shall be determined by measuring the total length of pipe installed in its final position.

Full compensation for thrust blocking and/or restrained joints shall be considered as included in the prices paid for various contract items and no additional allowance will be made therefore.

Full compensation for all staking, surveying, and locating shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefor.

Full compensation for all tees and blind flanges shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for hydrostatic testing of the water main and appurtenances shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for chlorination of pipe line, appurtenances, and purging water main prior to bacteria sampling shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for excavation, furnishing and placing backfill, asphalt surfacing/trench paving, shall be considered as included in the prices paid for the various contract items of work and no additional allowance will be made therefor.

Full compensation for thrust/anchor blocking and restrained joints shall be considered as included in the prices paid for various contract items and no additional allowance will be made therefore

Recycled Water Fire Hydrant Assembly will be paid for at the contract **Each (EA)** unit price, which price shall include full compensation for furnishing all labor, materials, tools, equipment and doing all work involved, including: ductile iron pipe, flanged gate valve (on lateral), tee and other appurtenances, breakable flange unit, location marker, concrete pad, and replacement of PCC curb, gutter or sidewalk, chlorination of pipe line and appurtenances, purging water main prior to bacteria sampling, and doing all the work involved in installation of the fire hydrant complete in place, as specified herein, and other work necessary to install fire hydrant not specifically enumerated in the plans or specifications, and no additional allowance will be made therefor.

Full compensation for all pipe laying, valve, tee, bury, thrust blocking, restrained joints spool, breakable flange unit and commercial fire hydrant, PCC curb, gutter or sidewalk, shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for hydrostatic testing of the water main and appurtenances shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

6" Gate Valve will be paid for at the contract price **Each (EA)**, which price shall include full compensation for furnishing all labor, materials, tools, equipment, including saw-cutting, excavation, bedding, backfill, temporary and permanent asphalt trench paving, anchor block restraint, testing, and any other work required for providing and installing gate valves not specifically enumerated in the plans or specifications, and no additional compensation will be made therefor.

12" Gate Valve will be paid for at the contract price **Each (EA)**, which price shall include full compensation for furnishing all labor, materials, tools, equipment, including saw-cutting, excavation, bedding, backfill, temporary and permanent asphalt trench paving, anchor block restraint, testing, and any other work required for providing and installing gate valves not specifically enumerated in the plans or specifications, and no additional compensation will be made therefor.

Potholing will be paid for at the contract price **Lump Sum (LS)** which price shall include full compensation for furnishing all labor, materials, tools and equipment and doing all the work involved in potholing existing utilities in horizontal and vertical alignment conflict with the new recycled water main, including excavation, locating, coordination, restoration and reconstruction of pavement landscaping and irrigation facilities; temporary and permanent trench paving; testing; contacting private utility companies for standby requirements and any other items necessary to pothole existing

utilities when required by the work or shown on the plans, not specifically enumerated in the plans or these specifications, and no additional allowance will be made therefor.

END OF SECTION

SECTION 511 RECYCLED WATER SERVICES

511A. GENERAL

Water services and related appurtenances shall conform to the City Water System Design and Construction Standards, the plans and these special provisions.

511B. SUBMITTALS

Please provide submittals on the following materials:

- 1) Water service pipe
- 2) Water service saddle and fittings
- 3) Corporation stop
- 4) Ball Valves/Angle Meter Stops
- 5) Meter Boxes

511C. MATERIALS

Unless shown otherwise on the plans, water services shall be 2-inch in size, all services shall be SINGLE services and be polyethylene tubing (C.T.S. 200 psi minimum rating) with no intermediate joints/splicing except to split the service at the meter location.

Service saddles shall be “double strap” all brass and shall be James Jones J979 (for ductile iron or AC pipes), Ford 202B (for ductile or AC pipes), James Jones J-996 (for PVC pipes), Ford S-90 design B (for PVC pipes), or approved equal, with AWWA/CC threads.

Corporation stops shall have AWWA/CC thread inlets and shall be Ford “Pack Joint” FB1000, James Jones J3401, McDonald “Mac-Pak Compression” 4701B-22 or approved equal. Plastic insert stiffeners shall be installed inside the tubing at the connections with fittings. All taps shall be with an approved tapping machine. Angle meter ball valves shall have the inlets and outlets with the same nominal diameters as the water services tubing and meter. Angel meter ball valve to meter connection will be with 1.5”X3/4” or 2”X3/4” bushings at each meter. The final alignment of the new service shall be upright and vertical in alignment with the existing meter location to connect to existing customer service.

Meter boxes shall be B36 Concrete Christy Boxes with Concrete Lid for 2-inch service.

511D. CONSTRUCTION

DESCRIPTION OF WORK -- The work to be done consists, in general, of establishment of new 2" recycled water services with new single water services, including meter, meter box, shut-off valve and valve box, trench backfill and resurfacing of asphalt concrete and/or replacement of concrete surface, remove and replace sidewalk and/or curb and gutter, traffic control, and doing other work specified in these Technical Specifications and as shown on the plans.

511D.1 WATER SERVICES

Water services shall be installed by either open excavation, boring method or pulling new services through existing host pipes/tubes. Water services shall have a constant slope between the main and the face of curb. All trench bedding and backfill material for water mainline and water services shall be as specified in these technical specifications.

The requirements of leakage and bacterial testing for water services shall be the same as and in conjunction with water mains.

The cover for water services at the face of curb shall be at least 32 inches below the gutter flow-line. Under mining or tunneling under the curb and gutter or sidewalk will not be allowed. If the CONTRACTOR elects to install the water services by boring, he/she shall be required to pothole all existing underground facilities to be crossed by the boring process prior to installation, to determine if there are any conflicts at his/her own expenses. The CONTRACTOR shall not be allowed to relocate existing water meters and/or to perform any re-plumbing on the customers' side of the water services unless these services are damaged by the CONTRACTOR'S operation and require repairs, and/or directed by the ENGINEER. If the contractor finds the customer side connection at the meter is leaking prior to any work being performed, the contractor shall contact the project engineer and project inspector before performing any work at the meter.

Number 12 THHN insulated copper wire shall be laid along the entire length and secured to each new water service tubing and connected to the existing tracer wire at the water main, and shall be extended 12-inches beyond the angle meter ball valve. All wire connections shall be made with copper crimps wrapped with electrical tape.

Any sidewalks, curb and gutter, driveways or other items not intended to be removed or replaced as part of work to be done is damaged by the CONTRACTOR'S work shall be

replaced to the nearest joints or score-line at Contractors expense. Sidewalks and driveways shall be constructed in accordance with City Standards. Three (3) 6-inch continuous 1/2-inch reinforcing steel bars shall be installed longitudinally in the sidewalks.

During the CONTRACTORS' operations to excavate to expose the water service at the water main, if an existing water service cannot be found in the excavation pit (the excavation pit is defined as 4'x4' area), the CONTRACTOR shall excavate two (2) additional feet on both sides of the pit to locate the service at no additional costs. The excavation pit is defined as 4'x4' area.

511D.2 METER BOXES

All meter boxes and lids located in the streets or driveways, shall be Christy H-20 traffic loading type or equal. Christy B36 boxes or equal shall be used. Meter boxes shall be set flush with the finished surface (sidewalk or curb in landscape areas). The CONTRACTOR shall pay for any water meters or meter boxes damaged or lost during construction. The CONTRACTOR shall take precautions to keep all contamination out of water lines and meters. Any damage to customer plumbing by the CONTRACTOR shall be repaired by the CONTRACTOR within two (2) hours. If the repair is not made within two (2) hours, the City will have the right to make the repair by either City crew or by another CONTRACTOR hired by City and deduct the costs from the payment due the CONTRACTOR.

Any sidewalks, curb and gutter, driveways or other items not intended to be removed or replaced as part of work to be done is damaged by the CONTRACTOR'S work shall be replaced to the nearest joints or score-line and or replaced in-kind.

511D.3 TRENCH BACKFILL

Trench backfill and bedding materials and placement for all locations shall conform to the detail shown on the plans, the City of Petaluma's Water System Design and Construction Standards and Section 26 Aggregate Base as specified in these contract documents.

511D.4 TESTING AND CHLORINATION

Water services, once the newly installed water services are complete in place and ready for use, the CONTRACTOR shall flush the new service through the angle meter ball valve for a minimum of three (3) minutes prior to connecting the new service to each

meter. Each service location flushed shall not be allowed to flow down the gutter without proper de-chlorination. Other methods of flushing may be accepted by the ENGINEER.

After the new service has been flushed and prior to backfill at the water main and water meter locations, the new service shall be left in place with the service saddle corporation stop in the open position and the angle meter ball valve in the closed position for ten (10) minutes, where after the ten (10) minutes each new water service will be inspected for leakage of the fittings.

511D.5 SHUT DOWN AND VALVE TURNING

All shutdowns and valve turning operations shall be performed by City Public Works and Utilities Department personnel only.

Before shutdown of water service and any connections made, the CONTRACTOR shall secure approval from the ENGINEER and show that all necessary labor, equipment, and materials (especially pipe and fittings, nuts, bolts, gaskets, etc.) are on the job site and ready for use.

The CONTRACTOR shall consult with the ENGINEER regarding location, time, date and duration of any planned shutdown. A maximum of three (3) hours may be allowed with the ENGINEER'S approval. No shutdown on Monday or Friday shall be allowed. "Door" hanger notices are to be delivered by the CONTRACTOR to all customers to be affected by the planned shutdown a minimum of forty-eight (48) hours prior to the shutdown. Door hangers will be provided by the Public Works and Utilities Department.

511E. MEASUREMENT AND PAYMENT

2-inch Recycled Water Service will be paid for at the contract price **Each (EA)**, which price shall include full compensation for furnishing all labor, materials, tools, equipment and doing all work involved, including, asphalt / concrete /sidewalk saw-cutting, excavation, removal of base rock, removal and replacement of existing saddles, installation of full circle clamp over existing mains, taping a new service, water service tubing, installing new meter boxes to grade, new shut off valve and valve box, installation of inlet and outlet meter valves, all fittings and connection to existing customer's service piping, pressure testing, chlorinating, on site tie-ins at back of meter box, meter transfer coordination, removing and disposing of old meter boxes, capping and abandoning existing services, backfilling, asphalt/concrete surfacing, replacement of signage, pavement markers, street striping or any other traffic markings or control devices, replacing any disturbed landscaping or irrigation in kind and any other work

required for constructing water services on new or existing mains including those not specifically enumerated on the plans and specifications, and no additional allowance will be made therefor.

END OF SECTION

SECTION 512
FIRE HYDRANTS AND WATER MAIN

512A. GENERAL

All water mains and related appurtenances shall conform to the City of Petaluma's Water System Design Guidelines and Construction Standards, the plans, and these Technical Specifications.

512B. SUBMITTALS

Submittals shall include, but not limited to the following;

- A. Manufacturer (submit one manufacturer)
- B. Material specification, including but not limited to AWWA, ASTM, UL etc. references
- C. Material sample (when required)

The Contractor shall site the contract section, water system design guidelines, and construction standard the submittal to be in compliance with.

512C. MATERIALS

Prior to use the contractor must notify the Engineer in writing of all materials to be permanently incorporated into the project in accordance with the contract documents.

Materials to be permanently incorporated into the project shall be verified and approved by the Engineer. Material approval may be by testing or specific evaluation of the product against the specifications, water system design guidelines and these technical specifications. Testing or evaluation to be performed prior to the materials being incorporated into the project and should be done prior to arriving at the project site.

All materials and articles incorporated into the permanent Work:

- A. Shall be new, unless the Special Provisions, Technical Specifications, project plans permit otherwise;
- B. Shall meet the requirements of the Contract Documents and be approved by the Engineer;
- C. May be inspected or tested at any time during their preparation and use; and
- D. Shall not be used in the Work if they become unfit after being previously approved.

Request for approval of substitute materials shall be the decision of the Engineer.

The Engineer shall have the final decision of material use/incorporation at any time throughout the project duration.

512C.1 WATER MAIN

The water main shall be of the following material unless otherwise shown in the plans.

- A) Poly Vinyl Chloride (PVC). PVC shall conform to AWWA C900 and C905. All PVC shall be DR 18 minimum.
- B) Ductile Iron Pipe conforming to AWWA C150 and C151
- C) Fitting three (3) inches and larger shall be cement lined ductile iron as specified in the City Water System Design and Construction Standards.
- D) All buried PVC Pipe shall be installed with conductive tracer attached to the top of the exterior of the pipe.
- E) Ductile iron pipe, when used, shall conform to AWWA C105, encased in 8-mil polyethylene tubing securely taped and extended/overlapped not less than one (1) foot each direction from the center of the joint.

512C.2 GATE VALVES

- A. Gate valves shall conform to the City Water System Design and Construction Standards and these Special Provisions, and shall be “AWWA approved” non-rising stem Clow Resilient Wedge Gate Valve, American Flow Control Series 2500 Resilient Wedge Gate Valve, or approved equal. All bolts, nuts and washers shall be Type 316 stainless steel. All internal and external surfaces of the valve body and bonnet shall have a fusion bonded epoxy coating, complying with ANSI/AWWA C550, applied electro- statically prior to assembly.
- B. All gate valves and couplings or mechanical joint bolts shall require corrosion protection. All bolts, nuts, washers and tiebacks shall be stainless steel type 316 conforming to ASTM A320. All fittings and valves shall be poly-bagged and taped with 10 mil minimum thick polyethylene.

512C.3 BUTTERFLY VALVES

- A. Butterfly valves shall be class 150B designed in accordance with AWWA C504 with flanged or mechanical joints bodies, two (2) inch AWWA operating nut, resilient seating system, ductile iron body, with 316 stainless steel shaft and disc, as seats which are vulcanized, bonded, or mechanically secured, or clamped to the body or disc. Valves shall be the stub or through shaft design and rated not less than 200 psi. Valves shall be travelling nut type and actuator shall have a mechanical stop which will withstand an input torque of 450 ft-lbs against the stop without damage. Wafer

type valves are not acceptable. Valves shall be Henry-Pratt, Dezurik Model BAW, or equal.

- B. All valves and couplings or mechanical joint bolts shall require corrosion protection. All bolts, nuts, washers and tiebacks shall be stainless steel type 316 conforming to ASTM A320. All fittings and valves shall be poly-bagged and taped with 10 mil minimum thick polyethylene.
- C. Butterfly valves shall be restrained accordingly by EBBA Megalug retainer glands or flanges, or approved equal.

512C.4 RESTRAINED COUPLING

- A. Restrained couplings are placed in pipelines to join plain ends of the same or dissimilar materials and provide axial restraint. Place restrained couplings as shown on the Contract Drawings.
- B. Manufacturer shall be EBAA Iron Inc. Series 3800 "MEGA-COUPLING" or approved equal. Install per manufacturer's instructions.
- C. All buried Pipe shall be installed with conductive tracer attached to the top of the exterior of the pipe

512C.5 MECHANICAL JOINT RESTRAINT

- A. Mechanical joints restraints shall be when connect pipe to a mechanical joints.
- B. Manufacturer shall be EBAA Iron Inc., or approved equal

512C.6 RESTRAINED JOINTS

- A. Restrained joints are placed in pipelines to restrain push on joints and ensure the pipeline will not separate at the joint during pressure spike and water hammer events. Place restrained joints as shown on the Contract Drawings.
- B. Manufacturer shall be EBAA Iron Inc., or approved equal

512C.7 FIRE HYDRANT

- A. Fire hydrants shall conform to City of Petaluma Standards.
- B. Fire hydrants shall have a "Breakable Flange Unit" manufactured by American AVK with breakable stainless steel bolts. The Breakable Flange shall be set so that it remains 2" above the concrete finished grade. The CONTRACTOR shall contact American AVK Co., 2155 Meridian Blvd., Minden, NY 89423 (Telephone: 775-552-1400) for information about the Breakable Flange Units.

512D. CONSTRUCTION

512D.1 POTHOLING

The locations of the existing underground utilities shown on the plans are approximate only. The CONTRACTOR shall verify the exact locations of those facilities in the field by potholing, probing, or other means, which will locate and identify the facility at the locations designated in field by the ENGINEER, at least seven (7) working days prior to the installation of pipeline main. No compensation for right-of-way delay other than time extension shall be given. Neither trench excavation nor pipe laying shall be performed until all potholing has been completed and the ENGINEER has reviewed the potholing information as a required submittal. Contractor may submit request to perform potholing with less than seven (7) days before installation work to commence. In the event that the City grants this request, no delay or idle time will be granted for any utilities not located or not marked during the work. In addition, the Contractor shall negotiate with the City for a reduction in price of the approved bid price for potholing.

512D.1 PIPE LAYING

Unless otherwise approved by the ENGINEER, the depth of the cover over the new water main from finished grade shall be as shown on the plans or a minimum of forty-two (42) inches. In case of vertical conflict between the proposed water main and existing or proposed utilities, sewer main/laterals, the proposed water main shall be installed/roped within the manufacturer's recommended maximum allowable deflection to clear the other utilities, and still maintain at least forty-two (42) inches cover. No additional payment for "over-excavation and backfill" will be made if the additional excavation does not exceed eighteen (18) inches.

Where the new water main crosses over a sewer main or sewer laterals with less than twelve (12) inch separation, the CONTRACTOR shall center a full length of ductile iron water pipe (without any joints in between) on the sewer main in accordance with the detail shown on CITY Standard Plan No 855.03. Where a new water main crosses under a sewer main or sewer lateral, the CONTRACTOR shall install a full length of ductile iron water pipe for water and remove and replace the sewer main or lateral with a ductile iron segment pipe. No additional compensation will be made for installation of ductile iron pipe for crossings. Water drops shall be per City Standards.

Transitions between pipes manufactured from different materials shall be as approved by the ENGINEER. Adapters between PVC and ductile iron pipe shall be ductile iron mechanical joint solid sleeve manufactured by Tyler Pipe, Power Seal, or approved equal. All bolts, nuts, and washers shall be stainless steel type 316.

The CONTRACTOR shall at all times have on hand sufficient pumping equipment and machinery in good working condition to pump ground water if encountered, or should any emergency arise caused by construction work. During pipe laying and concrete pouring and until the concrete has set hard, excavations shall be kept free of water. The detail of unstable trench shown on Standard Trench Details No. 852 shall be used if ground water and/or mud are encountered in the trench.

512D.2 TRENCH BACKFILL

Trench backfill and bedding materials and placement for all locations shall conform to the City of Petaluma's Water System Design and Construction Standards and as specified in these Special Provisions.

512D.3 TESTING AND CHLORINATION

Testing shall conform to City Water System Design and Construction Standards. No pipe installation will be accepted until the leakage in each section is nil and until the bacterial test passes.

All lines, mains, and branches shall be sterilized by chlorination in accordance with the water main and water services shall be tested concurrently. Chlorination of the pipe line may be done in conjunction with the hydrostatic test.

All costs involved in testing water mains and services including laboratory fees, all required appurtenances and temporary blow-off assemblies shall be included in the price paid for water main.

512D.4 TIE-INS

All water main tie-ins shall be made under the inspection of City Department of Public Works and Utilities personnel. The CONTRACTOR shall give the CITY a minimum of seventy-two (72) hour notice of a request for shutdown of the City water system in order to make connections, hot taps or abandonments to the main. Tie-in connection between the new water main and existing water main shall be according to the Plans and field conditions, and shall comply with the City Standard Guidelines and City Standard Details.

Water lines shall not be connected to the City's water system until lines have been pressure tested, chlorinated and approved by the City Department of Public Works and Utilities.

During the water main tie-in the interior of all appurtenances being installed shall be thoroughly swabbed with a strong HTH solution prior to installation. The

CONTRACTOR shall exercise all necessary precautions to prevent the entrance of trench water or any other foreign material into the water main and shall conduct all operations in accordance with the most stringent AWWA sanitation practices.

Due to the city's aging water system it should be anticipated by the contractor that a complete shutdown of the city's water system of the location to be tied-in may not be possible. The contractor may experience a partially pressurized water system during the course of work to be performed. The contractor shall have sufficient pumping equipment in good working condition to minimize water accumulation in the trench. Dewatering of the trench will be necessary and any discharge to the city's sewer system will require a discharge permit from the city's wastewater treatment facility.

512D.5 SHUTDOWNS AND VALVE TURNING

The CONTRACTOR shall perform all work so as to cause minimum inconvenience to residents and in no event will the CONTRACTOR be permitted to shut off water service to residents without the ENGINEER'S approval. No shutdown on weekends, holidays, Fridays and before 8:30 a.m. shall be allowed. "Door" notices are to be delivered to all customers to be affected by the shutdown by the CONTRACTOR a minimum of 4 days prior to Monday shutdowns. Forty-eight (48) hours prior to any planned discontinuance of service due to performance of the work, the CONTRACTOR shall notify the residents to be so inconvenienced in writing. The CITY shall first approve the notice and hours of shutdown.

All shutdowns and valve turning operations shall be performed by City Department of Public Works and Utilities personnel only.

Before shutdown of water service and any connections made, the CONTRACTOR shall secure approval from the ENGINEER and show that all necessary labor, equipment, and materials (especially pipe and fittings, nuts, bolts, gaskets, etc.) are on the job site and ready for use.

The CONTRACTOR shall consult with the ENGINEER regarding location, time, date and duration of any planned shutdown. A maximum of three (3) hours may be allowed with the ENGINEER'S approval. No shutdown on Monday or Friday shall be allowed. "Door" hanger notices are to be delivered by the CONTRACTOR to all customers to be affected by the planned shutdown a minimum of forty-eight (48) hours prior to the shutdown. Door hangers will be provided by the Department of Public Works and Utilities.

512D.6 BLOW-OFF

A water main blow-off shall be installed at the location as shown on the plans and will conform to the City Water System Design and Construction Standards the plans and these Special Provisions.

512D.7 TAPPING VALVES AND HOT TAPS

Tapping valves shall conform to the requirements of "Gate Valves" in of the City Water System Design Guidelines and Construction Standards except as modified in these Contract Documents. Inlet ends of the tapping valve shall be flanged with a raised machine projection on the flange that mates with the machined recess in the tapping sleeve outlet flange. Outlet ends of tapping valves shall have mechanical joint restrainers by EBBA's Series 1100 "MEGALUG" for ductile iron pipe or series 2000 PV for PVC/C-900 pipe, or equal (the CITY is not aware of any equal at this time). Tapping valves shall fit the new pipe being installed.

Tapping sleeves shall be constructed of all stainless steel with separate Type 316 stainless steel bolt sets as manufactured by JCM 432, Power Seal 3490, Ford FTSS stainless steel, or approved equal. Sleeves shall have "full face 1/8" thick" standard flange gaskets permanently bonded to flanges at factory.

All "Hot Taps" to existing water mains larger than two (2) inches shall be made by the City Department of Public Works and Utilities. The CONTRACTOR shall contact the City prior to scheduling a "Hot Tap". The CONTRACTOR shall, at his/her expense, furnish and install the tapping valves, sleeves and valve boxes.

The excavation area for tapping sleeve and valve shall conform to the requirements as described in the Water System Design and Construction Standards and these special provisions and at the location show on the plans. The existing pavement shall be saw cut and removed to at least six (6) inches outside each side line of the trench/excavation to permit proper keying in the restored pavement.

Between the hours of 4:30 p.m. and 8:00 a.m., the tapping pit shall be bridged in such a manner so as to safely accommodate vehicle traffic. Tapping pits shall not remain in excess of forty-eight (48) hours. In cases where the work is not completed within the forty-eight (48) hour time limit, the CONTRACTOR shall temporarily backfill or bridge the pit when work is not being done, place temporary paving, and open to traffic. All covered valve boxes shall be brought to grade within twenty-four (24) hours.

The CONTRACTOR shall perform all work so as to cause minimum inconvenience to residents and in no event will the CONTRACTOR be permitted to shut off water service to residents without the ENGINEER'S approval. Forty-eight (48) hours prior to any

discontinuance of service due to performance of the work, the CONTRACTOR shall notify the residents to be so inconvenienced in writing. The CITY shall first approve the notice and hours of shutdown.

Connection pits or connection trenches shall not remain un-backfilled in excess of forty-eight (48) hours. No excavated pit or trench shall remain open when work is not in progress at that site. It shall be either safely bridged and barricaded as approved by the ENGINEER, or backfilled (temporarily paved if in the "traveled way").

In case the work is not completed within the forty-eight (48) hour limit, the CONTRACTOR shall temporarily backfill or properly bridge the excavation when work is not being done, place temporary paving, and open to traffic. Temporary paving shall consist of a minimum of 1.5 inch thick hot mix hot mix asphalt and shall be regularly maintained by the CONTRACTOR.

512D.8 FIRE HYDRANT ASSEMBLY

Installation of fire hydrant assembly shall be at locations as shown on the project plans. Minor location adjustments may be necessary to avoid underground utilities as necessary.

The fire hydrant assembly shall include at minimum tee fitting and flanged gate valve, ductile iron pipe, bury, riser spool, breakable flange unit and fire hydrant. Installation shall be per these project contract documents.

Installation shall be per manufacturer's specifications and shall conform to city standard 857.

Fire hydrants shall be painted safety yellow color using Rust-Oleum High Performance V7400 System 340 VOC DTM Alkyd Enamel at the manufacturing plant and shall be Clow 865, American AVK2420, or equal. Commercial and residential fire hydrants shall conform to city standard 857.

New fire hydrants shall have a "Breakable Flange Unit" manufactured by American AVK with breakable stainless steel bolts. The Breakable Flange shall be set so that it remains 2" above the concrete finished grade. The CONTRACTOR shall contact American AVK Co., 2155 Meridian Blvd., Minden, NY 89423 (Telephone: 775-552-1400) for information about the Breakable Flange Units.

The requirements of leakage and bacterial testing for water services shall be the same as and in conjunction with water mains.

The interior of all appurtenances being installed shall be thoroughly swabbed with a strong HTH solution prior to installation. The CONTRACTOR shall exercise all necessary precautions to prevent the entrance of trench water or any other foreign material into the water main and shall conduct all operations in accordance with the most stringent AWWA sanitation practices.

A blue fire hydrant pavement marker of Stimsonite 88 or equal shall be installed in the street, marking the location of hydrant six (6) inches from the centerline on the hydrant side of the centerline. Immediately after application of the adhesive, pavement markers shall be placed in position and pressure applied until firm contact is made with the pavement

512D.9 ABANDON / REMOVE WATER MAIN

Abandonment and removal of the existing water lines shall not be done until the new lines are ready for use and all existing water services are transferred to the new main. The abandonment shall include abandoning the water main including placement of grout in mains larger than 4-inches, removal of all valve cans, lids and concrete rings along water main.

All valve boxes on the abandoned mains shall be removed and plugged with a minimum of three (3) inches of Type A hot mix asphalt over Class 2 aggregate base compacted to ninety-five (95%) percent relative compaction.

512E. QUALITY CONTROL - Not used-

512F. MEASUREMENT AND PAYMENT

Potholing will be paid for at the **Lump Sum (LS)** contract unit price, which shall include full compensation for furnishing all labor, materials, tools and equipment and doing all the work involved in potholing existing utilities in horizontal alignment conflict with the new water and sewer mains or service laterals. Including excavation, locating, coordination, restoration and reconstruction of pavement, landscaping and irrigation facilities; temporary trench paving; testing; and any other items necessary to pothole existing utilities when required by the work or shown on the plans, not specifically enumerated in the plans or these specifications, and no additional allowance will be made therefor. Contractor shall submit a record of all potholes completed.

6" Water Main will be paid for at the contract price per **Linear Foot (LF)**, which price shall include full compensation for furnishing all labor, materials, tools, equipment, and doing all the water main and all fittings complete in place, including surveying, staking,

locating, saw-cutting, demolition of existing asphalt paving/concrete, excavation, disposal of debris, pipe and pipe laying, pipeline trench dewatering, furnishing and placing backfill, bedding, temporary and permanent asphalt trench paving, asphalt trench or concrete paving up to the finish grade, replacement of raised pavement markers in areas not overlaid or reconstructed, hydrostatic testing of the water main and appurtenances, chlorination of pipe line and appurtenances, purging water main prior to bacteria sampling, furnishing and installing of fittings, and reducers, cutting, handling, and disposal of asbestos cement pipe, thrust blocking and/or restrained joints, disposal of all chlorinated water by the Contractor, water main component reporting, construction water and all work involved in its obtainment, development and distribution, cleaning and flushing the water mains, and any other work required for constructing water mains not specifically enumerated on the plans or in these specifications and no additional allowance will be made therefore.

8" Water Main will be paid for at the contract price per **Linear Foot (LF)**, which price shall include full compensation for furnishing all labor, materials, tools, equipment, and doing all the water main and all fittings complete in place, including surveying, staking, locating, saw-cutting, demolition of existing asphalt paving/concrete, excavation, disposal of debris, pipe and pipe laying, pipeline trench dewatering, furnishing and placing backfill, bedding, temporary and permanent asphalt trench paving, asphalt trench or concrete paving up to the finish grade, replacement of raised pavement markers in areas not overlaid or reconstructed, hydrostatic testing of the water main and appurtenances, chlorination of pipe line and appurtenances, purging water main prior to bacteria sampling, furnishing and installing of fittings, and reducers, cutting, handling, and disposal of asbestos cement pipe, thrust blocking and/or restrained joints, disposal of all chlorinated water by the Contractor, water main component reporting, construction water and all work involved in its obtainment, development and distribution, cleaning and flushing the water mains, and any other work required for constructing water mains not specifically enumerated on the plans or in these specifications and no additional allowance will be made therefore.

The linear footage of water pipe to be used in computing payment shall be determined by measuring the total length of pipe installed in its final position.

Full compensation for all pipe laying shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for thrust blocking and/or restrained joints shall be considered as included in the prices paid for various contract items and no additional allowance will be made therefore.

Full compensation for all staking, surveying, and locating shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefor.

Full compensation for all tees and blind flanges shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for hydrostatic testing of the water main and appurtenances shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for chlorination of pipe line, appurtenances, and purging water main prior to bacteria sampling shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Water Main Tie-Ins will be paid for at the contract **Each (EA)** price, which price shall include full compensation for furnishing all labor, materials, tools, equipment, and doing all work involved, including saw-cutting, excavation, backfilling, installation of fittings, thrust blocks, installation and removal of temporary blow-offs, couplers, tees, temporary restrained caps or plugs, horizontal and vertical adjustment of 45deg bends required to facilitate tie-in operations at specified locations shown on the plans. Cutting and capping portions of existing pipe as necessary as part of the tie-in. Coordination with City, 48-hour resident notification, resurfacing / trench paving, and any other work required for water main tie-ins not specifically enumerated in the plans or specifications, and no additional compensation will be made therefor.

Work under water main tie-ins excludes that portion of pipe paid for as part of water main. Tie-In locations located in the drawings shall include a minimum of 10 feet of pipe to connect the newly installed water mains with the existing water main.

Full compensation for excavation, furnishing and placing backfill, asphalt surfacing/ trench paving, shall be considered as included in the prices paid for the various contract items of work and no additional allowance will be made therefor.

Full compensation for thrust/anchor blocking and restrained joints shall be considered as included in the prices paid for various contract items and no additional allowance will be made therefore

Hot Tap will be paid for at the contract price **Each (EA)** unit price, which price shall include full compensation for furnishing all labor, materials, tools, equipment and doing all work involved, including: thrust blocking, tapping sleeve, concrete pier blocks, tapping valve, valve support, valve can, reducers, 8"/6" pipe stub and 2" temporary blow-off, and other appurtenances, excavation, backfill, and replacement of asphalt concrete and concrete, and doing all the work involved in installation of Hot Tap (4" – 8" existing water main) complete in place, as specified herein, and other work necessary not specifically enumerated in the plans or specifications, and no additional allowance will be made therefor.

Raise/Lower – Water Main will be paid for at the contract **Each (EA)** price, which price shall include full compensation for furnishing all labor, materials, tools, equipment, and doing all work involved, including saw-cutting, excavation, backfilling, installation of fittings, thrust blocks, couplers, tees, temporary restrained caps or plugs, horizontal and vertical adjustment of 45deg bends, concrete cap over pipe at specified locations shown on the plans, resurfacing / trench paving, and any other work required for installing the water main over or under existing structures per city standards not specifically enumerated in the plans or specifications, and no additional compensation will be made therefor.

Work under installing water main over structure excludes that portion of pipe paid for as part of water main. Water main over structure locations located in the drawings shall include a minimum of 5 feet of pipe from the vertical 45-degree DI elbow to connect to the newly installed water mains.

Full compensation for excavation, furnishing and placing backfill, asphalt surfacing/trench paving, shall be considered as included in the prices paid for the various contract items of work and no additional allowance will be made therefor.

Fire Hydrant Assembly will be paid for at the contract **Each (EA)** unit price, which price shall include full compensation for furnishing all labor, materials, tools, equipment and doing all work involved, including: DUCTILE IRON pipe, flanged gate valve (on lateral), tee and other appurtenances, breakable flange unit, location marker, concrete pad, and replacement of PCC curb, gutter or sidewalk, chlorination of pipe line and appurtenances, purging water main prior to bacteria sampling, and doing all the work involved in installation of the fire hydrant complete in place, as specified herein, and other work necessary to install fire hydrant not specifically enumerated in the plans or specifications, and no additional allowance will be made therefor.

Full compensation for all pipe laying, valve, tee, bury, thrust blocking, restrained joints spool, breakable flange unit and commercial fire hydrant, PCC curb, gutter or sidewalk, shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for hydrostatic testing of the water main and appurtenances shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Fire Hydrant Relocation will be paid for at the contract **Each (EA)** unit price, which price shall include full compensation for furnishing all labor, materials, tools, equipment and doing all work involved, including: ductile iron pipe, flanged gate valve (on lateral, if existing cannot be reused), tee and other appurtenances, breakable flange unit, location marker, concrete pad, and replacement of PCC curb, gutter or sidewalk, chlorination of pipe line and appurtenances, purging water main prior to bacteria sampling, and doing all the work involved in relocating the existing fire hydrant complete in place, as specified

herein, and other work necessary to relocate fire hydrant not specifically enumerated in the plans or specifications, and no additional allowance will be made therefor.

Full compensation for all pipe laying, valve, tee, bury, thrust blocking, restrained joints spool, breakable flange unit and resetting of the existing hydrant, PCC curb, gutter or sidewalk, shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for hydrostatic testing of the water main and appurtenances shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Gate Valve will be paid for at the contract price **Each (EA)**, which price shall include full compensation for furnishing all labor, materials, tools, equipment, including saw-cutting, excavation, bedding, backfill, temporary and permanent asphalt trench paving, anchor block restraint, testing, and any other work required for providing and installing gate valves not specifically enumerated in the plans or specifications, and no additional compensation will be made therefor.

Abandon Water Main will be paid for at the contract price **Lump Sum (LS)**, which price shall include full compensation for furnishing all labor, materials, tools and equipment, and doing all work involved in abandoning the existing water main at the locations shown on the drawings, including saw-cutting, excavation, disposal of excavated material, separation from existing water system, testing, installation of grout, pumping equipment, trench paving / resurfacing, removal of valves, valve cans, concrete rings, and any other work required for abandoning existing water main not specifically enumerated on the plans or in these specifications and no additional allowance will be made therefor.

END OF SECTION

SECTION 513
RECYCLED WATER SERVICES

513A. GENERAL

Water services and related appurtenances shall conform to the City Water System Design and Construction Standards, the plans and these special provisions.

513B. SUBMITTALS

Please provide submittals on the following materials:

- 1) Water service pipe
- 2) Water service saddle and fittings
- 3) Corporation stop
- 4) Ball Valves/Angle meter stops
- 5) Meter Boxes
- 6) Gate Valves
- 7) Pressure Reducing Valves

513C. MATERIALS

2-inch Service - Unless shown otherwise on the plans, water services shall be polyethylene tubing (C.T.S. 200 psi minimum rating) with no intermediate joints/splicing except to split the service at the meter location.

Service saddles shall be “double strap” all brass and shall be James Jones J979 (for ductile iron or AC pipes), Ford 202B (for ductile or AC pipes), James Jones J-996 (for PVC pipes), Ford S-90 design B (for PVC pipes), or approved equal, with AWWA/CC threads.

Corporation stops shall have AWWA/CC thread inlets and shall be Ford “Pack Joint” FB1000, James Jones J3401, McDonald “Mac-Pak Compression” 4701B-22 or approved equal. Plastic insert stiffeners shall be installed inside the tubing at the connections with fittings. All taps shall be with an approved tapping machine. Angle meter ball valves shall have the inlets and outlets with the same nominal diameters as the water services tubing and meter. The final alignment of the new service shall be upright and vertical in alignment with the meter box location.

Meter boxes shall be B36 Concrete Christy Boxes with Concrete Lid, painted purple or with purple coating

3-inch/4-inch Service – Ductile Iron or PVC pipe (All pipe Class 200 or DR18) shall be used unless otherwise shown on the plans. All fittings shall be Ductile Iron or Brass unless otherwise noted on the plans.

All gate valves shall be Resilient Wedge Gate Valves manufactured by Mueller Inc. or approved equal.

Meter boxes shall be B48 Concrete Christy Boxes with Concrete Lid, painted purple or purple coating.

All Pressure Reducing Valves (PRVs) shall be WILKINGS Model 500CHLR, or approved equal.

513D. CONSTRUCTION

DESCRIPTION OF WORK -- The work to be done consists, in general, of replacement of existing water services with new single water services, trench backfill and resurfacing of asphalt concrete and/or replacement of concrete surface, remove and replace sidewalk and/or curb and gutter, traffic control, and doing other work specified in these Technical Specifications and as shown on the plans.

512D.1 WATER SERVICES

Water services shall be installed by either open excavation or boring method. Pulling new services through existing host pipes/tubes shall not be allowed. If the CONTRACTOR elects to install water services by boring, he/she shall be required to pothole all existing underground facilities at his/her own expenses to determine if there are any conflicts. The cover for water services shall vary from the recycled water main to three (3) feet at the gutter flow line. Water services shall have a constant slope between the main and the face of curb. All trench bedding and backfill material for water mainline and water services shall be as specified in these Technical Specifications.

The requirements of leakage and bacterial testing for water services shall be the same as and in conjunction with water mains.

The CONTRACTOR shall perform all work so as to cause minimum inconvenience to residents and in no event will the CONTRACTOR be permitted to shut off water service

to residents without the ENGINEER'S approval. Forty-eight (48) hours prior to any discontinuance of service due to performance of the work, the CONTRACTOR shall notify the residents to be so inconvenienced in writing. The CITY shall first approve the notice and hours of shutdown.

Existing services shall not be abandoned until replacement services are ready for use. The Contractor shall verify the location of the existing water service, either by potholing or excavation at the existing meter box. The existing service may be located at the water main or connected to an existing fire service lateral. It is the responsibility of the Contractor to verify the location of the existing service prior to abandonment. A full circle clamp shall be installed at the existing service as part of the abandonment procedures. The full circle clamp shall be provided by the Contractor. Full circle, repair clamps shall be minimum 9-inch long Ford FS-1, Ford FS-2, PowerSeal 3412AS or 3121AS, Romac SS1, or Smith-Blair 261

The existing water main pipe material varies from location. Pipe materials are known to be AC (asbestos concrete), C900, cast iron and steel.

Number 12 THHN insulated copper wire shall be laid along the entire length and secured to each new recycled water service tubing and connected to the existing tracer wire at the water main, and shall be extended 12-inches beyond the angle meter ball valve. All wire connections shall be made with copper crimps wrapped with electrical tape.

Any sidewalks, curb and gutter, driveways or other items not intended to be removed or replaced as part of work to be done is damaged by the CONTRACTOR'S work shall be replaced to the nearest joints or score-line at Contractors expense. Sidewalks and driveways shall be constructed in accordance with City Standards. Three (3) 6-inch continuous 1/2-inch reinforcing steel bars shall be installed longitudinally in the sidewalks.

During the CONTRACTORS' operations to excavate to expose the water service at the water main, if an existing water service cannot be found in the excavation pit (the excavation pit is defined as 4'x4' area), the CONTRACTOR shall excavate two (2) additional feet on both sides of the pit to locate the service at no additional costs. The excavation pit is defined as 4'x4' area.

Although no shutdown is wanted, a maximum to be 4 hours may be allowed with the ENGINEER'S approval. The ENGINEER will consider the customers' interests and inform the CONTRACTOR of his request for water shutdown. If requested by the ENGINEER temporary water services to certain properties shall be installed and maintained by the CONTRACTOR at the CONTRACTOR'S expense. No shutdown on weekends, holidays, Fridays or before 8:30 a.m. shall be allowed. "Door" notices are to

be delivered to all customers to be affected by the shutdown by the CONTRACTOR a minimum of 4 days prior to Monday shutdowns and 48 hours prior to Tuesday-Thursday shutdowns. Door hangers will be provided by the City Public Works & Utilities Department. Due to the age of the existing water valves, the City does not guarantee that a water-tight shutdown will be achieved. Therefore, the CONTRACTOR shall prepare to perform trench dewatering, if required, at his/her own costs and no additional compensation shall be allowed. Any dewatering shall include best management practices (BMPs) to protect the City storm water system.

Before any shutdown of water service and each service connection are made, the CONTRACTOR shall secure approval from the ENGINEER and show that all necessary labor, equipment, and materials (especially pipe and fittings, nuts, bolts, gaskets, etc.) are on the job site and ready for use.

512D.2 METER BOXES

All meter boxes and lids located in the streets or driveways, shall be Christy H-20 traffic loading type or equal. All meter boxes located with medians or landscape areas shall be concrete boxes with concrete lids. All meter box lids shall be purple in color. Christy B36 boxes or equal shall be used. Meter boxes shall be set flush with the finished surface (sidewalk or curb in landscape areas) and Christy B30 or equal for 6" blow-offs. The CONTRACTOR shall pay for any water meters or meter boxes damaged or lost during construction. The CONTRACTOR shall take precautions to keep all contamination out of water lines and meters. Any damage to customer plumbing by the CONTRACTOR shall be repaired by the CONTRACTOR within two (2) hours. If the repair is not made within two (2) hours, the City will have the right to make the repair by either City crew or by another CONTRACTOR hired by City and deduct the costs from the payment due the CONTRACTOR.

All costs involved shall be included in the prices paid for replacing water services. Any sidewalks, curb and gutter, driveways or other items not intended to be removed or replaced as part of work to be done is damaged by the CONTRACTOR'S work shall be replaced to the nearest joints or score-line and or replaced in-kind. All concrete work in conjunction with installation of water service meter boxes shall be included in the bid price for water services.

512D.3 PRESSURE REDUCING VALVE

Pressure reducing valve shall be Watts ¾" LF25AUB-Z3 PRV, 300 PSI inlet and 20-75 PSI outlet.

The CONTRACTOR shall install PRV on the backside of the meters the locations shown on the plans and reconnect to the existing service.

512D.4 TRENCH BACKFILL

Trench backfill and bedding materials and placement for all locations shall conform to the detail shown on the plans, the City of Petaluma's Water System Design and Construction Standards and Section 26 Aggregate Base as specified in these contract documents.

512D.5 TESTING AND CHLORINATION

Recycled Water services, once the newly installed recycled water services are complete in place and ready for use, the CONTRACTOR shall flush the new service through the angle meter ball valve for a minimum of three (3) minutes prior to connecting the new service to each meter. Each service location flushed shall not be allowed to flow down the gutter without proper de-chlorination. Other methods of flushing may be accepted by the ENGINEER.

After the new service has been flushed and prior to backfill at the water main and water meter locations, the new service shall be left in place with the service saddle corporation stop in the open position and the angle meter ball valve in the closed position for ten (10) minutes, where after the ten (10) minutes each new water service will be inspected for leakage of the fittings.

512D.6 SHUT DOWN AND VALVE TURNING

The CONTRACTOR shall perform all work so as to cause minimum inconvenience to residents and in no event will the CONTRACTOR be permitted to shut off water service to residents without the ENGINEER'S approval. No shutdown on weekends, holidays, Fridays or before 8:30 a.m. shall be allowed. "Door" notices are to be delivered to all customers to be affected by the shutdown by the CONTRACTOR a minimum of 4 days prior to Monday shutdowns. Forty-eight (48) hours prior to any planned discontinuance of service due to performance of the work, the CONTRACTOR shall notify the residents

to be so inconvenienced in writing. The CITY shall first approve the notice and hours of shutdown.

All shutdowns and valve turning operations shall be performed by City Public Works and Utilities Department personnel only.

Before shutdown of water service and any connections made, the CONTRACTOR shall secure approval from the ENGINEER and show that all necessary labor, equipment, and materials (especially pipe and fittings, nuts, bolts, gaskets, etc.) are on the job site and ready for use.

The CONTRACTOR shall consult with the ENGINEER regarding location, time, date and duration of any planned shutdown. A maximum of three (3) hours may be allowed with the ENGINEER'S approval. No shutdown on Monday or Friday shall be allowed. "Door" hanger notices are to be delivered by the CONTRACTOR to all customers to be affected by the planned shutdown a minimum of forty-eight (48) hours prior to the shutdown. Door hangers will be provided by the Public Works and Utilities Department.

513E. ABANDON WATER SERVICE

Abandonment and removal of the existing water service shall include removal of connection fittings and capping or crimping of ends of tubing a minimum of eighteen (18) inches below the meter.

Abandonment and removal of the existing water service shall not be done until the new water service is complete and ready for use, including completion of flushing and leakage inspection.

513F. MEASUREMENT AND PAYMENT

2-inch Recycled Water Service Installation will be paid for at the contract price each (EA), which price shall include full compensation for furnishing all labor, materials, tools, equipment and doing all work involved, including, sawcutting, excavation, bedding, backfilling, water service tubing and piping, installing and raising meter boxes to grade, installation of inlet and outlet meter valves and valve boxes, relocation or demolition of meter box, asphalt trench paving, concrete curb replacement, sidewalk replacement, wall replacement, pressure testing, chlorinating, on site tie-ins at back of meter box, meter transfer coordination, removing and disposing of old meter boxes, abandonment of existing service, placing circle clamp over existing water mains at existing water service, capping existing services, removing existing backflow preventers,

removing and replacing curb, gutter, sidewalk, and driveways as required, replacing any disturbed landscaping or irrigation in kind, removing and resetting landscape bricks or other surface material in planter strips, removing, preserving and resetting existing cobblestone curb and gutter, and any other work required for constructing water services on new main not specifically enumerated on the plans and specifications, and no additional allowance will be made therefor.

All concrete work, including sidewalk and curb & gutter replacement in conjunction with work for recycled water service shall be included in the bid price for (EA) recycled water service.

Potholing will be paid for at the contract price lump sum (LS), which price shall include full compensation for furnishing all labor, materials, tools and equipment and doing all the work involved in potholing existing utilities in horizontal and vertical alignment conflict with the new recycled water main, 6" blow-off assembly, service laterals, tie-in, concrete work, road reconstruction and paving. Including excavation, locating, coordination, restoration and reconstruction of pavement landscaping and irrigation facilities; temporary and permanent trench paving; testing; contacting private utility companies for standby requirements and any other items necessary to pothole existing utilities when required by the work or shown on the plans, not specifically enumerated in the plans or these specifications, and no additional allowance will be made therefor.

Trench Resurfacing shall be considered as included in the price for various contract items of work involved and no additional compensation will be made therefor.

END OF SECTION

SECTION 520
RECYCLED WATER MAIN

520A. GENERAL

All recycled water main and related appurtenances shall conform to the City of Petaluma's Water System Design and Construction Standards, the plans, and these Special Provisions.

520B. SUBMITTALS

The Contractor shall provide submittals on all pipe materials, gasket materials, fasteners, solvents, lubricants, adhesives, taps, fittings, and hydrants.

520C. MATERIALS

520C.1 RECYCLED WATER MAIN

- A. The CONTRACTOR shall verify and inspect all materials to be installed including; pipe, fittings, tubing, clamps etc. to ensure compliance with the City Department of Public Works and Utilities ENGINEER'S Approved List of materials, the plans and these Special Provisions.
- B. The recycled water main shall be Poly Vinyl Chloride (PVC) or Ductile Iron Pipe (DIP). PVC, shall conform to AWWA C900 and AWWA C905, and shall be purple in color. All PVC shall be DR 18 minimum. DIP shall conform to AWWA C150 and C151. When Ductile Iron pipe is used, shall conform to AWWA C105, encased in 8-mil polyethylene tubing securely taped and extended/overlapped not less than one (1) foot each direction from the center of the joint.
- C. Fittings three (3) inches and larger shall be cement lined ductile iron as specified in City Water System Design and Construction Standards except that ductile iron long sleeve manufactured by Tyler Pipe or equal shall be used as a coupling.
- D. All buried PVC Pipe shall be installed with conductive tracer attached to the top of the exterior of the pipe

520C.2 GATE VALVES

- A. Gate valves shall conform to the City Water System Design and Construction Standards and these Special Provisions, and shall be "AWWA approved" non-rising stem Clow Resilient Wedge Gate Valve, American Flow Control Series 2500 Resilient Wedge Gate Valve, or approved equal. All bolts, nuts and washers shall be Type 316 stainless steel. All internal and external surfaces of the valve body and bonnet shall have a fusion bonded epoxy coating. complying with ANSI/AWWA C550, applied electro- statically prior to assembly.

- B. All gate valves and couplings or mechanical joint bolts shall require corrosion protection. All bolts, nuts, washers and tiebacks shall be stainless steel type 316 conforming to ASTM A320. All fittings and valves shall be poly-bagged and taped with 10 mil minimum thick polyethylene.

520C.3 BUTTERFLY VALVES

- A. Butterfly valves shall be class 150B designed in accordance with AWWA C504 with flanged or mechanical joints bodies, two (2) inch AWWA operating nut, resilient seating system, ductile iron body, with 316 stainless steel shaft and disc, as seats which are vulcanized, bonded, or mechanically secured, or clamped to the body or disc. Valves shall be the stub or through shaft design and rated not less than 200 psi. Valves shall be travelling nut type and actuator shall have a mechanical stop which will withstand an input torque of 450 ft-lbs against the stop without damage. Wafer type valves are not acceptable. Valves shall be Henry-Pratt, Dezurik Model BAW, or equal.
- B. All valves and couplings or mechanical joint bolts shall require corrosion protection. All bolts, nuts, washers and tiebacks shall be stainless steel type 316 conforming to ASTM A320. All fittings and valves shall be poly-bagged and taped with 10 mil minimum thick polyethylene.
- C. Butterfly valves shall be restrained accordingly by EBBA Megalug retainer glands or flanges, or approved equal.

520C.4 RESTRAINED COUPLING

- A. Restrained couplings are placed in pipelines to join plain ends of the same or dissimilar materials and provide axial restraint. Place restrained couplings as shown on the Contract Drawings.
- B. Manufacturer shall be EBAA Iron Inc. Series 3800 “MEGA-COUPLING” or approved equal. Install per manufacturer’s instructions.
- C. All buried PVC Pipe shall be installed with conductive tracer attached to the top of the exterior of the pipe

520C.5 MECHANICAL JOINT RESTRAINT

- A. Mechanical joints restraints shall be when connect PVC to a mechanical joints.
- B. Manufacturer shall be EBAA Iron Inc. Series 2000PV MEGALUG, or approved equal

520C.6 RESTRAINED JOINTS

- A. Restrained joints are placed in pipelines to restrain push on joints and ensure the pipeline will not separate at the joint during pressure spike and water hammer events. Place restrained joints as shown on the Contract Drawings.

B. Manufacturer shall be EBAA Iron Inc. Series 1900 or 2800, or approved equal.

520C.7 6-INCH BLOW OFF ASSEMBLY

- A. Blow off Assemblies shall conform to City Standard 862 and all other City of Petaluma Water System Design Standards.
- B. Meter Boxes for Blow Off Assemblies shall be purple in color and shall have “Recycled Water” in printed on the concrete lid.

520C.8 AIR RELIEF VALVE (ARV)

- A. Air Relief Valve boxes shall be painted purple with “Recycled Water” printed on the box cover.

520D. CONSTRUCTION

520D.1 POTHOLING

The locations of the existing underground utilities shown on the plans are approximate only. The CONTRACTOR shall verify the exact locations of those facilities in the field by potholing, probing, or other means, which will locate and identify the facility at the locations designated in field by the ENGINEER, at least seven (7) working days prior to the construction of the recycled water main and road reconstruction. No compensation for right-of-way delay other than time extension shall be given. Neither trench excavation nor pipe laying shall be performed until all potholing has been completed and the ENGINEER has reviewed the potholing information as a required submittal.

520D.2 PIPE LAYING

Unless otherwise approved by the ENGINEER, the depth of the cover over the new recycled water main from finished grade shall be as shown on the plans or a minimum of forty-two (42) inches. In case of vertical conflict between the proposed recycled water main and existing or proposed utilities, sewer main/laterals, the proposed recycled water main shall be installed/roped within the manufacturer’s recommended maximum allowable deflection to clear the other utilities, and still maintain at least forty-eight (48) inches cover. No additional payment for "over-excavation and backfill" will be made if the additional excavation does not exceed eighteen (18) inches.

Where the new recycled water main crosses over a sewer main or storm drain line with less than twelve (12) inch separation, the CONTRACTOR shall center a full length of ductile iron recycled water pipe (without any joints in between) on the sewer main in accordance with the detail shown on CITY Standard Plan No 855.03. Where a new recycled water main crosses under a sewer main or sewer lateral, the CONTRACTOR shall install a full length of ductile iron recycled water pipe for recycled water and remove and replace the

sewer main or storm drain with a ductile iron segment pipe. No additional compensation will be made for installation of ductile iron pipe for crossings. Water drops shall be per City Standards.

Transitions between pipes manufactured from different materials shall be as approved by the ENGINEER. Adapters between PVC and ductile iron pipe shall be ductile iron mechanical joint solid sleeve manufactured by Tyler Pipe, Power Seal, or approved equal. All bolts, nuts, and washers shall be stainless steel type 316.

The CONTRACTOR shall at all times have on hand sufficient pumping equipment and machinery in good working condition to pump ground water if encountered, or should any emergency arise caused by construction work. During pipe laying and concrete pouring and until the concrete has set hard, excavations shall be kept free of water. The detail of unstable trench shown on Standard Trench Details No. 852 shall be used if ground water and/or mud are encountered in the trench.

520D.3 TIE-INS

All recycled water main tie-ins shall be made under the inspection of City Department of Public Works and Utilities Personnel. The CONTRACTOR shall give the CITY a minimum of seventy-two (72) hours' notice of a request for shutdown of the City recycled water system in order to make connections, hot taps or abandonments to the main. Tie-in connection between the new recycled water main and existing recycled water main shall be according to the Plans and field conditions, and shall comply with the City Detail Specification No. 11.

Recycled water lines shall not be connected to the City's recycled water system until lines have been pressure tested, chlorinated and approved by the City Department of Public Works and Utilities.

During the recycled water main tie-in the interior of all appurtenances being installed shall be thoroughly swabbed with a strong HTH solution prior to installation. The CONTRACTOR shall exercise all necessary precautions to prevent the entrance of trench water or any other foreign material into the water main and shall conduct all operations in accordance with the most stringent AWWA sanitation practices.

Tie-ins may require depressurizing/dewatering of the existing recycled water main. Depending on the size/slope/length of main, the removal process may take multiple days. The Contractor shall take into consideration all equipment, tools, labor, materials necessary to remove and safely dispose of any recycled water removed from the existing recycled water main to facilitate the tie-in connection. All costs involved with dewatering the existing pipe and all associated work with included in the bid item for "Tie-In".

The Contractor is responsible for all staking, surveying, and locating all pipelines. The Engineer shall approve of the pipeline alignment and location prior to any work being done to install the pipeline.

520D.4 TRENCH BACKFILL

Trench backfill and bedding materials and placement for all locations shall conform to the City of Petaluma's Water System Design and Construction Standards and as specified in these specifications.

520D.5 6-INCH BLOW OFF ASSEMBLY

The blow-off assembly shall adhere to the standards set forth in the Construction Drawings, and City of Petaluma standards.

The requirements of leakage and bacterial testing for water services shall be the same as and in conjunction with water mains.

A blue fire hydrant pavement marker of Stimsonite 88 or equal shall be installed in the street, marking the location of blow-off assembly six (6) inches from the centerline on the hydrant side of the centerline. Immediately after application of the adhesive, pavement markers shall be placed in position and pressure applied until firm contact is made with the pavement.

520D.6 TESTING AND CHLORINATION

Testing shall conform to City Water System Design and Construction Standards. No pipe installation will be accepted until the leakage in each section is nil and until the bacterial test passes.

All lines, mains, and branches shall be sterilized by chlorination in accordance with the recycled water main and water services shall be tested concurrently. Chlorination of the pipe line may be done in conjunction with the hydrostatic test.

All costs involved in testing recycled water mains and services including laboratory fees, all required appurtenances and temporary blow-off assemblies shall be included in the price paid for recycled water main.

520D.7 SHUTDOWNS AND VALVE TURNING

The CONTRACTOR shall perform all work so as to cause minimum inconvenience to residents or businesses and in no event will the CONTRACTOR be permitted to shut off water service to residents without the ENGINEER'S approval. Forty-eight (48) hours prior to any planned discontinuance of service due to performance of the work, the CONTRACTOR shall notify the residents to be so inconvenienced in writing. The CITY shall first approve the notice and hours of shutdown.

All shutdowns and valve turning operations shall be performed by City Department of Public Works and Utilities personnel only.

Before shutdown of water service and any connections made, the CONTRACTOR shall secure approval from the ENGINEER and show that all necessary labor, equipment, and materials (especially pipe and fittings, nuts, bolts, gaskets, etc.) are on the job site and ready for use.

The CONTRACTOR shall consult with the ENGINEER regarding location, time, date and duration of any planned shutdown. A maximum of three (3) hours may be allowed with the ENGINEER'S approval. No shutdown on Monday or Friday shall be allowed. "Door" hanger notices are to be delivered by the CONTRACTOR to all customers to be affected by the planned shutdown a minimum of forty-eight (48) hours prior to the shutdown. Door hangers will be provided by the Department of Public Works and Utilities.

520D.8 TEMPORARY BLOW-OFF

Temporary Blow-off valves will be installed at the various locations as required and directed by the ENGINEER for 12" pipe line and 6" lateral for testing and will conform to the City Water System Design and Construction Standards, plans and these Special Provisions.

520D.9 TAPPING VALVES AND HOT TAPS

Tapping valves shall conform to the requirements of "Gate Valves" in Section 8 of the City Water System Design and Construction Standards except as modified in these Special Provisions. Inlet ends of the tapping valve shall be flanged with a raised machine projection on the flange that mates with the machined recess in the tapping sleeve outlet flange. Outlet ends of tapping valves shall have mechanical joint restrainers by EBBA's Series 1100 "MEGALUG" for ductile iron pipe or series 2000 PV for PVC/C-900 pipe, or equal (the CITY is not aware of any equal at this time). Tapping valves shall fit the new pipe being installed.

Tapping sleeves shall be constructed of all stainless steel with separate Type 316 stainless steel bolt sets as manufactured by JCM 432, Power Seal 3490, Ford FTSS stainless steel, or approved equal. Sleeves shall have "full face 1/8" thick" standard flange gaskets permanently bonded to flanges at factory.

All "Hot Taps" to existing recycled water mains larger than two (2) inches shall be made by the City Department of Public Works and Utilities. The CONTRACTOR shall contact the City prior to scheduling a "Hot Tap". The CONTRACTOR shall, at his/her expense, furnish and install the tapping valves, sleeves and valve boxes.

The excavation area for tapping sleeve and valve shall conform to the requirements as described in the Water System Design and Construction Standards and these special provisions and at the location show on the plans. The existing pavement shall be saw cut and removed to at least six (6) inches outside each side line of the trench/excavation to permit proper keying in the restored pavement.

Between the hours of 4:30 p.m. and 8:00 a.m., the tapping pit shall be bridged in such a manner so as to safely accommodate vehicle traffic. Tapping pits shall not remain in excess

of forty-eight (48) hours. In cases where the work is not completed within the forty-eight (48) hour time limit, the CONTRACTOR shall temporarily backfill or bridge the pit when work is not being done, place temporary paving, and open to traffic. All covered valve boxes shall be brought to grade within twenty-four (24) hours.

The CONTRACTOR shall perform all work so as to cause minimum inconvenience to residents and in no event will the CONTRACTOR be permitted to shut off water service to residents without the ENGINEER'S approval. Forty-eight (48) hours prior to any discontinuance of service due to performance of the work, the CONTRACTOR shall notify the residents to be so inconvenienced in writing. The CITY shall first approve the notice and hours of shutdown.

Connection pits or connection trenches shall not remain un-backfilled in excess of forty-eight (48) hours. No excavated pit or trench shall remain open when work is not in progress at that site. It shall either be safely bridged and barricaded as approved by the ENGINEER, or backfilled (temporarily paved if in the "traveled way").

In case the work is not completed within the forty-eight (48) hour limit, the CONTRACTOR shall temporarily backfill or properly bridge the excavation when work is not being done, place temporary paving, and open to traffic. Temporary paving shall consist of a minimum of 1.5 inch thick hot mix asphalt concrete and shall be regularly maintained by the CONTRACTOR.

520E. QUALITY CONTROL

The Contractor shall provide manufacturers certificates for all pipe materials and appurtenances.

520F. MEASUREMENT AND PAYMENT

Potholing will be paid for at the LUMP SUM (LS) contract unit price, which shall include full compensation for furnishing all labor, materials, tools and equipment and doing all the work involved in potholing existing utilities in horizontal alignment conflict with the new recycled water main or service laterals. Including excavation, locating, coordination, restoration and reconstruction of pavement landscaping and irrigation facilities; temporary trench paving; testing; and any other items necessary to pothole existing utilities when required by the work or shown on the plans, not specifically enumerated in the plans or these specifications, and no additional allowance will be made therefor.

12-inch Recycled Water Main, 8-inch Recycled Water Main, 4-inch Recycled Water Main, will be paid for at the contract price per LINEAR FOOT (LF), which shall include full compensation for conforming to the provisions of this section, furnishing all labor, materials, tools, equipment, and doing all work related to installing the recycled water main and all fittings complete in place, including surveying, staking, locating, sawcutting, demolition of existing asphalt paving / concrete , disposal of debris, excavation, pipe and pipe laying, pipeline trench dewatering, furnishing and placing backfill, bedding, asphalt

trench or concrete paving up to the finish grade, use of controlled density fill around the pipe where noted on the drawings, replacement of raised pavement markers in areas not overlaid or reconstructed, hydrostatic testing of the recycled water main and appurtenances, chlorination of pipe line and appurtenances, purging recycled water main prior to bacteria sampling, furnishing and installing of fittings and reducers, cutting, handling, and disposal of existing pipe removed during installation, installation of thrust blocking and/or restrained joints, disposal of all chlorinated water by the CONTRACTOR, recycled water main component reporting, construction water and all work involved in its obtainment, development and distribution, cleaning and flushing the recycled water mains, and any other work required for constructing recycled water mains not specifically enumerated on the plans or in these specifications and no additional allowance will be made therefor.

The linear footage of water pipe to be used in computing payment shall be determined by measuring the total length of pipe installed in its final position.

Full compensation for all pipe laying shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for thrust blocking and/or restrained joints shall be considered as included in the prices paid for various contract items and no additional allowance will be made therefore.

Full compensation for all staking, surveying, and locating shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefor.

Full compensation for all tees and blind flanges shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for hydrostatic testing of the water main and appurtenances shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Full compensation for chlorination of pipe line, appurtenances, and purging water main prior to bacteria sampling shall be considered as included in the prices paid for the various contract items and no additional allowance will be made therefore.

Water Main Tie-Ins will be paid for at the contract **Each (EA)** price, which price shall include full compensation for furnishing all labor, materials, tools, equipment, and doing all work involved, including saw-cutting, excavation, backfilling, installation of fittings, thrust blocks, installation and removal of temporary blow-offs, couplers, tees, temporary restrained caps or plugs, horizontal and vertical adjustment of 45deg bends required to facilitate tie-in operations at specified locations shown on the plans. Cutting and capping portions of existing pipe as necessary as part of the tie-in. Coordination with City, 48-hour resident notification, resurfacing / trench paving, and any other work required for water

main tie-ins not specifically enumerated in the plans or specifications, and no additional compensation will be made therefor.

Work under water main tie-ins excludes that portion of pipe paid for as part of water main. Tie-In locations located in the drawings shall include a minimum of 10 feet of pipe to connect the newly installed water mains with the existing water main.

Full compensation for excavation, furnishing and placing backfill, asphalt surfacing/ trench paving, shall be considered as included in the prices paid for the various contract items of work and no additional allowance will be made therefor.

Full compensation for thrust/anchor blocking and restrained joints shall be considered as included in the prices paid for various contract items and no additional allowance will be made therefore

Hot Tap will be paid for at the contract price **Each (EA)** unit price, which price shall include full compensation for furnishing all labor, materials, tools, equipment and doing all work involved, including: thrust blocking, tapping sleeve, concrete pier blocks, tapping valve, valve support, valve can, reducers, 8”/6” pipe stub and 2” temporary blow-off, and other appurtenances, excavation, backfill, and replacement of asphalt concrete and concrete, and doing all the work involved in installation of Hot Tap (4” – 8” existing water main) complete in place, as specified herein, and other work necessary not specifically enumerated in the plans or specifications, and no additional allowance will be made therefor.

4-inch Gate Valve, 8-inch Gate Valve and 12-inch Gate Valve, will be paid for at the contract price **EACH (EA)**, which shall include full compensation for furnishing all labor, materials, tools, equipment, including excavation, bedding, backfill, valve cans, valve nut extensions, testing, and restraint, and any other work required for installing gate valves not specifically enumerated in the plans or specifications, and no additional compensation will be made therefor.

Full compensation for thrust/anchor blocking and restrained joints shall be considered as included in the prices paid for various contract items and no additional allowance will be made therefore.

Raise/Lower – Water Main will be paid for at the contract Each (EA) price, which price shall include full compensation for furnishing all labor, materials, tools, equipment, and doing all work involved, including saw-cutting, excavation, backfilling, installation of fittings, thrust blocks, couplers, tees, temporary restrained caps or plugs, horizontal and vertical adjustment of 45deg bends, concrete cap over pipe at specified locations shown on the plans, resurfacing / trench paving, and any other work required for installing the water main over or under existing structures per city standards not specifically enumerated in the plans or specifications, and no additional compensation will be made therefor.

Work under installing water main over structure excludes that portion of pipe paid for as part of water main. Water main over structure locations located in the drawings shall include a minimum of 5 feet of pipe from the vertical 45-degree DI elbow to connect to the newly installed water mains.

Full compensation for excavation, furnishing and placing backfill, asphalt surfacing/ trench paving, shall be considered as included in the prices paid for the various contract items of work and no additional allowance will be made therefor.

Temporary Blow-Off Valves for 4-inch, 8-inch, and 12-inch shall be considered as included in the prices of various contract items and will be full compensation for furnishing all labor, materials, tools, equipment, and doing all work involved, including saw cutting, excavation, backfilling, installation of fittings, thrust blocks, and any other work required for blow-offs not specifically enumerated in the plans and specifications, and no additional compensation will be made therefor.

Trench Resurfacing shall be considered as included in the price for various contract items of work involved and no additional compensation will be made therefor.

END OF SECTION

SECTION 811
TRENCH SHORING AND BRACING

811A. GENERAL

Trench shoring and bracing shall conform to the provisions in Section 7-1.02K(6), "Occupational Safety and Health Standards" of the Standard Specifications 2010, these Specifications, Cal-OSHA and the Division of Industrial Safety Orders.

811B. SUBMITTALS -Not used-

811C. MATERIALS -Not used-

811D. CONSTRUCTION

The CONTRACTOR shall obtain any necessary permits from the State of California, Division of Industrial Safety. The CONTRACTOR shall pay all costs in connection with said permits and proof of such permits shall be submitted to the ENGINEER prior to commencing trench work.

811D.1 GENERAL DESIGN REQUIREMENTS

- A. Design excavation support systems to meet requirements and standards of the Occupational Safety and Health Administration (OSHA).
- B. Design excavation support systems to meet the requirements of California Code of Regulations, Title 8 – Construction Safety Orders and California Labor Code Sections 6705 to 6707.
- C. Design structural steel members in accordance with the American Institute of Steel Construction (AISC) Manual of Steel Construction Allowable Stress Design and the Uniform Building Code.
- D. Excavation support systems for trench excavations and boring and receiving pit excavations shall be selected by the CONTRACTOR based on the soil conditions, depths of excavations, groundwater conditions, and other site conditions. No attempt has been made by ENGINEER to define acceptable trench shoring options.
- E. Design of excavation support system for boring and receiving pits shall be stamped and signed by a civil or structural engineer licensed in the State of California, and shall:
 - 1. Allow for construction of thrust blocks or reaction walls adequate to resist anticipated jacking forces with appropriate safety factor.
 - 2. Provide stable bottom (e.g. prevent bottom heave and/or piping/boiling)
 - 3. Allow for installation of trenchless equipment.

4. Allow for the removal of the shoring system that is in step with backfilling sequence and will not damage nearby utilities, structures, or pavements.
- F. Allowable Deflection: No more than 1/2-inch at any point on the shoring system.

811D.2 GEOTECHNICAL INFORMATION

- A. CONTRACTOR shall make additional test borings and conduct other exploratory operations necessary for the design of excavation support systems.

If a moveable trench shield is used during excavation operations widen the trench width so that the shield is free to be lifted and then moved longitudinally without binding against the trench sidewalls.

811E. MEASUREMENT AND PAYMENT

Trench shoring and bracing for all work in the project shall be included in the various items of work and will not be paid as a separate item of work and no other compensations shall be paid therefore.

END OF SECTION

SECTION 900 LANDSCAPING

900A. GENERAL

900A.1 SUMMARY

A. Section Includes:

1. Plant materials.
2. Fertilizers.
3. Mulches.
4. Tree-stabilization materials.
5. Tree-watering devices.

B. Related Requirements:

1. Section 010000 "General Requirements" for project requirements.

900A.2 PREINSTALLATION MEETINGS

- ##### **A. Preinstallation Conference: Conduct conference at Project site.**

900A.3 ACTION SUBMITTALS

A. Product Data:

1. Plant materials.
2. Fertilizers.
3. Mulches.
4. Tree-stabilization materials.

B. Product Data Submittals: For each product.

1. Plant Materials: Include quantities, sizes, quality, and verified sources for plant materials.

C. Samples for Verification: Actual sample of finished products for each of the following:

1. Organic Mulch: 1-quart volume of each organic mulch required; typical of the lot of material to be furnished, in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch. Provide an accurate representation of color, texture, and organic makeup.
2. Root Barrier: Width of panel by 12 inches.

3. Tree Watering Bag: One product sample.

900A.4 INFORMATIONAL SUBMITTALS

A. Field Quality-Control Reports: Percolation tests for tree pits. Include the following:

1. Tree identification number matching the plans.
2. Time when water was added to tree pit to start percolation test.
3. Time with photo documentation showing increments of testing with water level in tree pit.
4. Identification of tester.

B. Qualification Statements: For landscape Installer. Include list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons.

C. Product Certificates: For each type of manufactured product, from manufacturer, and complying with manufacturer's certified analysis of standard products.

D. Sample Warranty: For special warranty.

900A.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before expiration of required maintenance periods.

900A.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment of plants.

1. Experience: Five years' experience in landscape installation.
2. Installer's Field Supervision: Maintain an experienced full-time supervisor on Project site when work is in progress.

B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.

C. Measurements: Measure in accordance with ANSI Z60.1. Do not prune to obtain required sizes.

1. Trees: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container-grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.

D. Plant Material Observation: Landscape Architect may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Landscape Architect may also observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and may reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.

1. Notify Landscape Architect of sources of planting materials seven days in advance of delivery to site.

900A.7 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws if applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, or walkways and pavements; or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

C. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

D. Handle planting stock by root ball.

E. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.

1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

F. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.

G. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

1. Do not remove container-grown stock from containers before time of planting.
2. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly wet condition.

900A.8 FIELD CONDITIONS

A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions in accordance with manufacturer's written instructions and warranty requirements.

900A.9 WARRANTY

A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner.
 - b. Structural failures, including plantings falling or blowing over.
 - c. Faulty performance of tree stabilization.
2. Warranty Periods: From date of substantial completion.

- a. Trees: 12 months.
3. Include the following remedial actions as a minimum:
 - a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
 - b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
 - c. A limit of one replacement of each plant is required except for losses or replacements due to failure to comply with requirements.
 - d. Provide extended warranty for period equal to original warranty period, for replaced plant material.

900B. PRODUCTS

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

1. Trees with damaged, crooked, or multiple leaders; with tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); with crossing trunks; with cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots are unacceptable.
2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.

B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Landscape Architect, with a proportionate increase in size of roots or balls.

C. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which begins at root flare in accordance with ANSI Z60.1.

D. Labeling: Label each plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for plant.

E.If formal arrangements or consecutive order of plants is indicated on Drawings, select stock for uniform height and spread, and number the labels to ensure symmetry in planting.

900B.1 FERTILIZERS

A. Granular Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition:
 - a. 3 percent of actual nitrogen, 4 percent phosphorous, and 3 percent potassium, by weight.
 - b. Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

B. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb of ectomycorrhizal fungi, 33 percent hydrogel, and maximum of 5.5 percent inert material.

900B.2 MULCHES

A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:

1. Type: Wood and bark chips.
2. Size Range: 1 inch minimum – 1-1/2 in maximum.
3. Color: Natural.

B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through a 1-inch sieve; soluble-salt content of 2 to 5 dS/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: 60 percent of dry weight.
2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

900B.3 TREE-STABILIZATION MATERIALS

A. Trunk-Stabilization Materials:

1. Upright Stakes: Rough-sawn, sound, new hardwood, free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal by length indicated, pointed at one end.
2. Flexible Ties: Wide rubber or elastic bands or straps of length required to reach stakes or turnbuckles.

900B.4 MISCELLANEOUS PRODUCTS

A. Root Barrier: Black, molded, modular panels 24 inches high (deep), 85 mils thick, and with vertical root deflecting ribs protruding 3/4 inch out from panel surface; manufactured with minimum 50 percent recycled polyethylene plastic with UV inhibitors.

B. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix in accordance with manufacturer's written instructions.

900C. EXECUTION

900C.1 EXAMINATION

A. Examine areas to receive plants, with Installer present, for compliance with requirements and conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Verify that plants and vehicles loaded with plants can travel to planting locations with adequate overhead clearance.
3. Suspend planting operations during periods of excessive soil moisture until moisture content reaches acceptable levels to attain required results.
4. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove soil and contamination as directed by Landscape Architect and replace with new planting soil.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

900C.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Landscape Architect's acceptance of layout before excavating or planting. Make minor adjustments as required.

900C.3 PLANTING AREA ESTABLISHMENT

- A. General: Prepare planting area for soil placement and mix planting soil in accordance with best management practices.
- B. Placing Planting Soil: Place and mix planting soil in-place over exposed subgrade.
- C. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- D. Application of Mycorrhizal Fungi: At time directed by Landscape Architect, broadcast dry product uniformly over prepared soil at application rate in accordance with manufacturer's written instructions.

900C.4 EXCAVATION FOR TREES AND SHRUBS

- A. Planting Pits and Trenches: Excavate circular planting pits.
 - 1. Excavate planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are unacceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
 - 2. Excavate approximately two times as wide as ball diameter for container-grown stock.
 - 3. Excavate 1" shallower than depth of root ball, measured from the root flare to the bottom of root ball.
 - 4. If area under the plant was initially dug too deep, add soil to raise it to correct level and thoroughly tamp the added soil to prevent settling.

5. Maintain angles of repose of adjacent materials to ensure stability. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing improvements.
6. Maintain supervision of excavations during working hours.
7. Keep excavations covered or otherwise protected when unattended by Installer's personnel.

B. Backfill Soil: Subsoil and topsoil removed from excavations may be used as backfill soil as indicated.

C. Obstructions: Notify Landscape Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.

1. Hardpan Layer: Drill 6-inch-diameter holes, 24 inches apart, into free-draining strata or to depth of 10 ft., whichever is less, and backfill with free-draining material.

D. Drainage: Notify Landscape Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.

E. Fill excavations with water and allow to percolate away before positioning trees and shrubs.

900C.5 TREE, SHRUB, AND VINE PLANTING

A. Inspection: At time of planting, verify that root flare is visible at top of root ball in accordance with ANSI Z60.1. If root flare is not visible, remove soil in a level manner from root ball to where the top-most root emerges from the trunk. After soil removal to expose root flare, verify that root ball still meets size requirements.

B. Roots: Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.

C. Container-Grown Stock: Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.

1. Backfill: For trees, use excavated soil for backfill.
2. Carefully remove root ball from container without damaging root ball or plant.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
4. Distribute granular fertilizer around each planting pit when pit is approximately one-half filled. Do not place in bottom of the hole.

5. Continue backfilling process. Water again after placing and tamping final layer of soil.

D. Slopes: When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of root ball.

900C.6 TREE PRUNING

- A. Remove only dead, dying, or broken branches. Do not prune for shape.
- B. Prune, thin, and shape trees, shrubs, and vines as directed by Landscape Architect.
- C. Prune, thin, and shape trees, shrubs, and vines in accordance with standard professional horticultural and arboricultural practices. Unless otherwise indicated by Landscape Architect, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.
- D. Do not apply pruning paint to wounds.

900C.7 INSTALLATION OF TREE-STABILIZATION MATERIALS

- A. Trunk Stabilization by Upright Staking: Install trunk stabilization as follows unless otherwise indicated:
 1. Upright Staking and Tying:
 - a. Stake trees of 2- through 5-inch caliper. Stake trees of less than 2-inch caliper only as required to prevent wind tip out. Use a minimum of three stakes of length required to penetrate at least 18 inches below bottom of backfilled excavation and to extend at least 72 inches above grade. Set vertical stakes and space to avoid penetrating root balls or root masses.
 - b. Stake trees with three stakes for trees up to 14 ft. high and up to 4 inches in caliper. Space stakes equally around trees.
 2. Support trees with bands of flexible ties at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.
 3. Support trees with two strands of tie wire, connected to the brass grommets of tree-tie webbing at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.

900C.8 INSTALLATION OF ROOT BARRIER

A. Install root barrier where trees are planted within 60 inches of paving or other hardscape elements, such as walls, curbs, and walkways, unless otherwise indicated on Drawings.

B. Align root barrier vertically and run it linearly along and adjacent to paving or other hardscape elements to be protected from invasive roots.

C. Install root barrier continuously for distance of 96 inches in each direction from tree trunk, for total distance of 16 ft. per tree. If trees are spaced closer, use single continuous piece of root barrier.

1. Position top of root barrier in accordance with manufacturer's written instructions.
2. Overlap root barrier minimum of 12 inches at joints.
3. Do not distort or bend root barrier during construction activities.
4. Do not install root barrier surrounding the root ball of tree.

900C.9 INSTALLATION OF MULCHES

A. Mulch backfilled surfaces of planting areas and other areas indicated.

1. Organic Mulch in Planting Areas: Apply 3-inch average thickness of organic mulch over 36 inch diameter area around tree, and finish level with adjacent finish grades. Do not place mulch within 3 inches of trunks or stems.

900C.10 PLANT MAINTENANCE

A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.

B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.

C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices when possible to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.

900C.11 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. Perform tree pit percolation tests.
2. Tree pit construction will be considered defective if it does not pass percolation tests and inspections.
3. Do not proceed with planting in tree pits until satisfactory percolation is demonstrated.

B. Prepare test and inspection reports.

900C.12 REPAIR AND REPLACEMENT

A. Repair or replace existing or new trees and other plants that are damaged by construction operations, in a manner approved by Landscape Architect.

1. Submit details of proposed pruning and repairs.
2. Perform repairs of damaged trunks, branches, and roots within 24 hours, if approved.
3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Landscape Architect.

B. Remove and replace trees that are more than 25 percent dead or in unhealthy condition before end of corrections period or are damaged during construction operations that Landscape Architect determines are incapable of restoring to normal growth pattern.

900C.13 CLEANING AND PROTECTION

A. During planting, keep adjacent paving and construction clean and work area in an orderly condition. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

C. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

D. After installation and before Substantial Completion, remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.

END OF SECTION

SECTION 920 ELECTRICAL

920A. GENERAL

Electrical shall conform to the provisions in Section 86, "Electrical Systems," of the Standard Specifications, Standard Plans with the following amendments, the National Electrical Code, Comply with part 4 of the *California MUTCD*, City Standards 600 Series for Street Lighting, these Special Provisions, and as directed by the Engineer.

Work shall include the installation of:

Rectangular Rapid Flashing Beacons (RRFBs) which includes installation of Type 15 lighting standards and foundations, three-inch steel poles and foundations, No. 5 pull boxes, solar street light systems, solar RRFB systems, signs, push buttons, modifications to existing flashing beacon systems at Loma Vista Elementary School, and connections to existing street light service.

Traffic Signal Modifications which includes installation of an existing Type 1-B pole on a new foundation, pedestrian signal heads on new mounting hardware, accessible pedestrian signals, push button assembly posts, pull boxes, conduits and conductors.

Certificates of Compliance shall be furnished for all materials.

920B. SUBMITTALS

920B.1 RECTANGULAR RAPID FLASHING BEACON

Contractor shall provide the Engineer with submittals for the Rectangular Rapid Flashing Beacon System.

Submit the manufacturer's replacement warranty documentation, certificate of compliance and the manufacturer's QC test data for the light bar, solar panel system, battery system, radio system and APS as an informational submittal, and solar power calculations that indicate the RRFB is capable of the claimed performance at a specific location.

920B.2 TRAFFIC SIGNAL MODIFICATIONS

Contractor shall provide the Engineer with submittals for the pedestrian signal heads, accessible pedestrian signals, poles, conduit, conductors, and pull boxes.

920B.3 STREET LIGHTS

Contractor shall provide the Engineer with submittals for the pole, luminaire, and solar-powered street light system.

920C. MATERIALS

920C.1 RRFB ASSEMBLIES: SOLAR WIRELESS RRFB SYSTEM

The rectangular rapid flashing beacons to be installed shall be a Tapco XL2 (solar) light bar with a controller kit and wireless communication or equivalent. See project plan for types, poles, and foundations. RRFB system shall be back to back.

The accessible pedestrian signals to be installed shall be 5"x7" pedestrian push button frame with tactile arrow assembly and R10-25 plaque. The pedestrian push buttons shall be iNX push button with touchless actuation or equivalent.

The pedestrian signage to be installed shall W11-2 (36"x36") or S1-1 (36"x36"), as indicated in the plans, and W16-P (24"x12"). See sheet project plans. Signage shall be back to back unless otherwise indicated.

New three-inch round galvanized steel poles and foundations shall have nominal dimensions of 14-foot height and 2 7/8-inch diameter. The foundation shall consist of a 36-inch long, 3-inch diameter steel sleeve embedded to 30 inches deep with 6 inches exposed above the finished grade and secured by a drive rivet or other method approved by the City representative.

920C.2 STREET LIGHT POLES

Street lights poles shall be Type 15 consistent with State Standard Plan ES-6A and Section 56, 86, and 87 of the State Standard Specifications. Luminaire mast arm shall be 12' long. Construct the pole foundation consistent with State Standard Plan ES-7N.

Pole identification numbers shall be located on the street side, minimum 4x2 inch reflective white on black with adhesive backs.

920C.3 LUMINAIRE

The luminaire shall be an LED fixture with a top-mounted photocell, manufacturer and brightness to be specified by the City.

920C.4 SOLAR STREET LIGHT SYSTEM

Solar street light systems shall be Firstlight BFL Series street light.

Solar engine and fixture shall be Powder Coat Gray.

LED Color Output shall be Warm White 3000K.

920C.5 CONDUIT AND CONDUCTORS

Conduit shall be 2-inch diameter Schedule 80 PVC. All bends shall be factory made. Conduits shall be sealed with an approved duct seal.

All wiring shall be type XHHW insulated stranded copper cable. Unless otherwise required by code all wiring shall be of the following sizes:

1. Street light wiring: No. 8.
2. Signal wiring: #14 minimum

920C.6 PULL BOXES

Pull boxes and covers in the sidewalk or behind the curb shall be composite, Christy “Fiberlite”, Armorcast polymer concrete or Engineer Approved equivalent. No. 5 pull boxes shall be installed adjacent to each pole as indicated in the plans on 12-inches of clean drain rock. Pull box covers shall be secured with brass hold down bolts and inscribed “CITY OF PETALUMA STREET LIGHTING” or “CITY OF PETALUMA TRAFFIC SIGNAL”.

920C.7 TRAFFIC SIGNAL MOUNTS (TOP-OF-POLE / SIDE-OF-POLE)

Pedestrian signal head mounts shall be bronze.

920C.8 TRAFFIC SIGNAL, ACCESSIBLE PEDESTRIAN SIGNALS (APS)

APS units shall be on the current Caltrans Authorized Material List (AML) touchless actuation type. Two known products on the AML are the PedSafety (Campbell) Guardian Wave FS 912 APS and the Polara iDS39R(X1)(X2)(X3)-CA.

The APS shall be the 3-wire type with a control unit mounted in each ped signal head.

Each APS shall include an R10-3 sign.

920D. CONSTRUCTION

920D.1 GENERAL

Notify the City of Petaluma at (707) 778-4303 at least 5 business days before starting work for a field marking of all City electrical facilities.

Contractor shall field verify with the City’s representative the proposed locations of all poles, pull boxes, push buttons, signs and beacons prior to final installation.

Contractor shall test the complete installation in the presence of City's Representative upon completion of the project, including tests for light distribution, controls, unintentional grounds, proper grounding, and bonding, circuit continuity.

920D.2 TRAFFIC SIGNAL, GENERAL

Contractor shall provide five (5) working days advance notice to the Engineer prior to beginning work on the existing traffic signal controller. Engineer will coordinate signal work with the City of Petaluma traffic engineering department to maintain the existing signals.

Construction methods shall conform with Section 87-1.03A of the State Specifications, as amended below:

The City Traffic Engineer determines the final locations of electrical systems. Verify the locations of electrical systems and the depths of existing detectors, conduits, and pull boxes.

Notify the City Traffic Engineer before performing work on the existing system.

Contractor may shut down the system for alteration or removal with prior notice to the City Traffic Engineer for a previously agreed-upon day, time and duration.

Where an existing underground facility is shown within 10 feet of any excavation, locate and field mark the facility before performing work that could damage or interfere with the existing facility.

If an existing facility is within 2 feet of an excavation, determine the exact location of the facility by excavating with hand tools before using any power-operated or power-driven excavating or boring equipment. A vacuum excavator may be used if authorized.

Notify the City Traffic Engineer immediately if an existing facility is damaged by your activities.

Limit the shutdown of traffic signal systems to normal working hours. Notify the Engineer and the City of Petaluma Police Department before shutting down the signal.

If you work on an existing lighting system and the roadway is to remain open to traffic, ensure the system is in operation by nightfall.

Do not use electrical power from existing highway facilities unless authorized.

Maintain a minimum 48-inch clearance for a pedestrian pathway when placing equipment.

Except for service installation or work on service equipment enclosures, do not work above ground until all materials are on hand to complete the electrical work at each location.

Bond all metal components to form a continuous grounded system as specified in National Electrical Code (NEC).

If you damage any portion of a concrete curb, sidewalk, curb ramp, driveway, or gutter depression, replace the entire section between contraction or expansion joints under section 73.

Perform an operational test of the systems.

Before starting the operational test for systems that impact traffic, the system must be ready for operation, and all signs, pavement delineation, and pavement markings must be in place at that location.

920D.3 RRFB AND STREET LIGHTING AT LOMA VISTA ACADEMY

Contractor shall provide five (5) working days advance notice to the Engineer prior to beginning work on the existing school crossing beacon. Engineer will coordinate beacon work with the City of Petaluma traffic engineering department and Loma Vista Academy to maintain the crosswalk .

Limit work to outside of school drop-off and pick-up hours

- M-F 8-830am
- M, T, Th, F 230-330pm
- W 1-2pm

For the existing beacon system, disconnect the existing S1-1 flashing sign on both the existing north and south poles. Replace the flashing sign with new static signs (S1-1 and W16-7P) and add a solar-powered, wireless RRFB system. The RRFB shall be single-sided on the north facing east and double sided on the south. Connect the RRFB system to the existing solar panel.

Remove and dispose of the existing in-pavement flashing lights and abandon the existing RRFB conduit. Install a new two-inch PVC conduit and two #8 conductors. Connect the new RRFB on the existing south pole to the solar power service supplied from the north pole.

Install a new, separate Type 15 street light pole on a new foundation. Install a 2” PVC conduit into a new No. 5 pull box for a future connection to electrical service. Install a solar street light system with a solar panel, batter, and luminaire. Install a wireless solar RRFB system with a single light bar facing west, a separate solar

panel, battery, and controller. Connect the RRFB system wirelessly with the system on the existing poles such that the RRFB is activated by those push buttons.

If you damage any portion of a concrete curb, sidewalk, curb ramp, driveway, or gutter depression, replace the entire section between contraction or expansion joints.

Perform an operational test of the systems.

920D.4 CITY STREET LIGHT

Install Type 15 street light poles, foundations, pull boxes, and conduit in accordance with the City of Petaluma Street Light Design and Construction Standards (June 1999).

Coordinate with the City's representative to turn off power to the street light circuit prior to working on the street light system.

Locate the underground street light service conduit. Install a pull box in the existing service conduit run. Remove existing service conductors to the next adjacent pull box, replace with new conductors with a minimum of 5-feet of slack within the new and adjacent pull box. Resplice the service conductors.

920D.5 SOLAR STREET LIGHT

Install the solar street light pole, foundation, solar panels, battery, luminaire, and auxiliary equipment according to the manufacturer's specifications.

920D.6 SOLAR-POWERED RRFB

Install the RRFB light bar, controller, solar panel, battery, signs, push button, and auxiliary equipment according to the manufacturer's specifications.

A manufacturer's representative must program the accessible pedestrian signals at the RRFB locations: Audible message should say: "Yellow lights are flashing to cross Maria Drive." Message should be spoken twice. All RRFBs in the system shall initiate activation simultaneously within 150ms of activation. If an additional activation occurs while the system is activated, the flash duration shall reset.

920D.7 CONDUIT

Conduit installation shall conform with Section 87-1.03B of the State Specifications. Excavating and backfilling for electrical systems shall conform with Section 87-1.3E of the State Specifications.

If existing underground conduit is to be incorporated into a new system, clean it with a mandrel or cylindrical wire brush and blow it clean with compressed air.

Conduit shall extend 1.5 inches above the bottom of pull boxes.

After conductors have been installed, the ends of conduits terminating in pull boxes and service and controller cabinets shall be sealed with an approved type of sealing compound.

920D.8 PULL BOXES

Pull box installation shall conform with Section 87-1.03C(1) of the State Specifications. Replace paragraph 3 of Section 87-1.03C(1) with:

Install a pull box on a bed of crushed rock.

Pull boxes shall not be located within sidewalk access ramp areas.

Where new conduit is to be installed into an existing pull box, the Contractor shall remove and dispose of the existing pull box and shall furnish a new pull box of equal or greater size.

Whenever a part of a square or slab of existing sidewalk, curb and gutter, or driveway is broken or damaged, the entire square, section or slab shall be removed and the concrete reconstructed. Payment for backfilling, compaction and sidewalk repair shall be included in the unit cost breakdown for removal of each item.

920D.9 CONDUCTORS AND WIRING

Installation for conductors and wiring shall conform to Section 87-1.03F of the State Specifications.

Splices shall be insulated by "Method B" or by heat shrink tubing conforming to the requirements of Section 87-1.03H(2) "Splice Insulation," of the State Specifications.

920D.10 FOUNDATIONS

Reinforced cast-in-drilled-hole concrete pile foundations for traffic signal and lighting standards shall conform to the provisions in Section 49 "Piling," Section 56-3 "Standards, Poles, Pedestals, and Posts", and Section 87-1.03E(3) of the State Specifications.

Material resulting from drilling holes shall be disposed of in conformance with the provisions in Section 87-1.03E, "Excavating and Backfilling," of the State Specifications.

920E. MEASUREMENT AND PAYMENT

Solar Rectangular Rapid Flashing Beacon System, Single or Double Sided shall be paid for at the contract unit price of **Each (EA) basis** per assembly, in place and shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all work involved in installing back to back solar rectangular rapid flashing beacons, pedestrian signage, pedestrian push buttons, wiring, controller work, solar panel, wireless communication, battery and equipment complete in place and any other work required to install the rectangular rapid flashing beacon, not specifically enumerated in these contract documents, and no additional allowance will be made therefor.

Three-Inch Diameter Post and Foundation shall be paid for at the contract unit price of **Each (EA) basis** and shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all work involved in installing new foundations, sleeve, and poles complete in place and any other work required to install the pole, not specifically enumerated in these contract documents, and no additional allowance will be made therefor.

Type 15 Street Light Pole and Foundation shall be paid for at the contract unit price of **Each (EA) basis** and shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all work involved in installing new foundations, poles, luminaires, No. 5 pull boxes, conduit, and conductors complete in place and any other work required to install the pole, not specifically enumerated in these contract documents, and no additional allowance will be made therefor.

Connect to Existing Street Light Service shall be paid for at the contract unit price of **Each (EA) basis** and shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all work involved in installing new conduit, conductors, splicing, and street lighting service connection complete in place and any other work required to install the service connection, not specifically enumerated in these contract documents, and no additional allowance will be made therefor.

Solar Street Light System shall be paid for at the contract unit price of **Each (EA) basis** and shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all work involved in installing new luminaires, solar panels, batteries, and other equipment complete in place and any other work required to install the solar street light system not specifically enumerated in these contract documents, and no additional allowance will be made therefor.

Traffic Signal System Modification (S. McDowell Blvd and Maria Drive) shall be paid for at the contract unit price of **Lump Sum (LS)**, in place and shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all work involved in the signal modification at the intersection including all procurement, and relocation of existing or installation of new poles, foundations, pedestrian push button posts and equipment, pedestrian signal heads, conduits, relocating existing Iteris Video detection

zones and reprogramming as necessary, excavation, backfill and removal of existing foundations, complete in place and functioning system and any other work required for the signal modification, not specifically enumerated in these contract documents, and no additional allowance will be made therefor.

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 of his/her designee and the escrow agent. Upon satisfactory completion of the Contract, the CONTRACTOR shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the CITY, pursuant to the terms of this section. The CONTRACTOR

shall pay to each subcontractor, not later than 20 days of receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each subcontractor, on the amount of retention withheld to ensure the performance of the CONTRACTOR.

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

ARTICLE 9. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between the CITY and the CONTRACTOR concerning the WORK consist of this Agreement and the following attachments to this Agreement:

- Notice Inviting Bids
- Instructions to Bidders
- Bid Forms including the Bid, Bid Schedule(s), Information Required of Bidder, Bid Bond, and all required certificates and affidavits
- Labor and Materials Bond
- Performance Bond
- Maintenance Bond
- General Conditions
- Supplementary General Conditions (if any)
- Specifications
- Special Provisions
- Drawings
- Federal Wage Rates dated _____ (if applicable)
- Form FHWA-1273 (if applicable)
- Addenda (if any)
- Change Orders which may be delivered or issued after Effective Date of the Agreement and are not attached hereto.

There are no Contract Documents other than those listed in this Article 9. The Contract Documents may only be amended by Change Order as provided in Paragraph 3.5 of the General Conditions.

ARTICLE 10. INSURANCE

The applicable insurance requirements, as approved by the City's Risk Manager, are set forth in **Exhibit B**, attached hereto and incorporated by reference herein. *[City use: check one.]*

ARTICLE 11. INDEMNIFICATION

- A. CONTRACTOR shall indemnify, defend with counsel acceptable to CITY, and hold harmless to the full extent permitted by law, CITY and its officers, officials, employees, agents and volunteers from and against any and all alleged liability, loss, damage, claims, expenses and costs (including, without limitation, attorney fees and costs and fees of litigation) (collectively, "Liability") of every nature arising out of or in connection with CONTRACTOR's performance of the WORK or its failure to comply with any of its obligations contained in this Agreement, except such Liability caused by the active negligence, sole negligence or willful misconduct of the CITY. Such indemnification by the CONTRACTOR shall include, but not be limited to, the following:
1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the CONTRACTOR, its subcontractors, employees, or agents in the performance of the WORK, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the CONTRACTOR, its employees, or agents;
 2. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the CONTRACTOR's, or Supplier's own employees, or agents engaged in the WORK resulting in actions brought by or on behalf of such employees against the CITY and/or the ENGINEER;
 3. Liability or claims arising directly or indirectly from or based on the violation of any Laws or Regulations, whether by the CONTRACTOR, its subcontractors, employees, or agents;
 4. Liability or claims arising directly or indirectly from the use or manufacture by the CONTRACTOR, its subcontractors, employees, or agents in the performance of this Agreement of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article, or appliance, unless otherwise specified stipulated in this Agreement;
 5. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the CITY or any other parties by the CONTRACTOR, its subcontractors, employees, or agents;
 6. Liability or claims arising directly or indirectly from the willful misconduct of the CONTRACTOR, its subcontractors, employees, or agents;
 7. Liability or claims arising directly or indirectly from any breach of the obligations assumed in this Agreement by the CONTRACTOR;
 8. Liability or claims arising directly or indirectly from, relating to, or resulting from a hazardous condition created by the CONTRACTOR, Subcontractors, Suppliers, or any of their employees or agents, and;
 9. Liability or claims arising directly, or indirectly, or consequentially out of any action, legal or equitable, brought against the CITY, the ENGINEER, their consultants, subconsultants, and the officers, directors, employees and agents of each or any of them, to the extent caused by the CONTRACTOR's use of any premises acquired by permits, rights of way, or easements, the Site, or any land or area contiguous thereto or its performance of the WORK thereon.

- B. The CONTRACTOR shall reimburse the CITY for all costs and expenses, (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals and court costs of appeal) incurred by said CITY in enforcing the provisions of this Paragraph.
- C. The indemnification obligation under this Article 11 shall be in addition to, and shall not be limited in any way by any limitation on the amount or type of insurance carried by CONTRACTOR or by the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts. The CONTRACTOR's responsibility for such defense and indemnity obligations shall survive the termination or completion of this Agreement for the full period of time allowed by law.
- D. Pursuant to California Public Contract Code Section 9201, City shall timely notify Contractor of receipt of any third-party claim relating to this Agreement.

ARTICLE 12. DISCLAIMER AND INDEMNITY
CONCERNING LABOR CODE SECTION 6400

By executing this agreement the CONTRACTOR understands and agrees that with respect to the WORK, and notwithstanding any provision in this contract to the contrary, the CONTRACTOR, and/or its privities, including, without limitation, subcontractors, suppliers and other engaged by the CONTRACTOR in the performance of the WORK shall be "employers" for purposes of California Labor Code Section 6400 and related provisions of law, and that neither CITY nor its officials, officers, employees, agents, volunteers or consultants shall be "employers" pursuant to California Labor Code Section 6400 with respect to the performance of the WORK by the CONTRACTOR and/or its privities.

The CONTRACTOR shall take all responsibility for the WORK, shall bear all losses and damages directly or indirectly resulting to the CONTRACTOR, any subcontractors, the CITY, its officials, officers, employees, agents, volunteers and consultants, on account of the performance or character of the WORK, unforeseen difficulties, accidents, or occurrences of other causes predicated on active or passive negligence of the CONTRACTOR or of any subcontractor, including, without limitation, all losses, damages or penalties directly or indirectly resulting from exposure to hazards in performance of the WORK in violation of the California Labor Code. The CONTRACTOR shall indemnify, defend and hold harmless the CITY, its officials, officers, employees, agents, volunteers and consultants from and against any or all losses, liability, expense, claim costs (including costs of defense), suits, damages and penalties (including, without limitation, penalties pursuant to the California Labor Code) directly or indirectly resulting from exposure to hazards in performance of the WORK in violation of the California Labor Code, except such liability or costs caused by the active negligence, sole negligence or willful misconduct of the CITY.

ARTICLE 13. INDEPENDENT CONTRACTOR

It is understood and agreed that in the performance of this Agreement, CONTRACTOR (including its employees and agents) is acting in the capacity of an independent contractor, and not as an agent or employee of the CITY. CONTRACTOR has full control over the means and methods of performing said services and is solely responsible for its acts and omissions, including the acts and omissions of its employees and agents.

ARTICLE 14. SUBCONTRACTORS

CONTRACTOR must obtain the CITY's prior written consent for subcontracting any WORK pursuant to this Agreement. Any such subcontractor shall comply, to the extent applicable, with the terms and conditions of this Agreement. Any agreement between CONTRACTOR and a subcontractor pursuant to this Agreement shall provide that the subcontractor procure and maintain insurance coverage as required herein and which shall name CITY as an additional insured.

ARTICLE 15. COMPLIANCE WITH LAWS/NON-DISCRIMINATION

CONTRACTOR shall comply with all applicable local, state and federal laws, regulations and ordinances in the performance of this Agreement. CONTRACTOR shall not discriminate in the provision of service or in the employment of persons engaged in the performance of this Agreement on account of race, color, national origin, ancestry, religion, gender, marital status, sexual orientation, age, physical or mental disability in violation of any applicable local, state or federal laws or regulations.

ARTICLE 16. NOTICES

All notices required or permitted by this Agreement, including notice of change of address, shall be in writing and given by personal delivery or sent postage prepaid and addressed to the parties intended to be notified, as set forth herein. Notice shall be deemed given as of the date of delivery in person or as of the date deposited in any post office or post office box regularly maintained by the United States Postal Service, unless otherwise stated herein. Notice shall be given as follows:

CITY: City Clerk
City of Petaluma
Post Office Box 61
Petaluma, California 94953
Telephone: (707) 778-4360

CONTRACTOR: _____
(Contact Name)

(Business Name)

(Address)

(City, State, Zip)

(Telephone)

(E-mail)

ARTICLE 17. GOVERNING LAW/VENUE

This Agreement shall be construed and its performance enforced under California law. Venue shall be in the Superior Court of the State of California in the County of Sonoma.

ARTICLE 18. NON-WAIVER

The CITY's failure to enforce any provision of this Agreement or the waiver of any provision in a particular instance shall not be construed as a general waiver of any part of such provision. The provision shall remain in full force and effect.

ARTICLE 19. THIRD PARTY BENEFICIARIES

The Parties do not intend, by any provision of this Agreement, to create in any third party any benefit or right owed by one party, under the terms and conditions of this Agreement, to the other party.

ARTICLE 20. ASSIGNMENT

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

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

ARTICLE 21. SEVERABILITY

If any term or portion of this Agreement is held to be invalid, illegal, or otherwise enforceable by a court of competent jurisdiction, the remaining provisions of this Agreement shall continue in full force and effect.

IN WITNESS WHEREOF, CITY and CONTRACTOR have caused this Agreement to be executed the day and year first above written.

CITY

CONTRACTOR _____

City Manager

By _____
(CORPORATE SEAL)

ATTEST:

City Clerk

APPROVED AS TO FORM:

City Attorney

Attest: _____

Address for giving notices:

Agent for service of process:

License Number

Taxpayer I.D. Number

Petaluma Business Tax Certificate Number

file name:

END OF AGREEMENT

AGREEMENT CERTIFICATE
(if Corporation)

STATE OF CALIFORNIA)
) ss:
COUNTY OF)

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

“RESOLVED, that _____, as _____
President of the Corporation, be and is hereby authorized to execute the Agreement
dated _____, 20____, by and between this
Corporation and _____ and that his/her execution thereof,
attested by the Secretary of the Corporation, and with the Corporate Seal affixed,
shall be the official act and deed of this Corporation.”

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

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

Secretary

(SEAL)

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

PROJECT PLANS

*(Note: Provided in 4 separate
PDF files; Drawings 1 - 83)*

SECTION VII
GEOTECHNICAL REPORT



Experience is the difference

GEOTECHNICAL STUDY REPORT

PAVEMENT REHABILITATION
MARIA DRIVE FROM RAINIER AVENUE
TO SOUTH MCDOWELL BOULEVARD
PETALUMA, CALIFORNIA

Project Number:

6498.18.PW.1

Prepared For:

BKF Engineers
Attention: Becky Dower
200 Fourth Street, Suite 300
Santa Rosa, California

Prepared By:

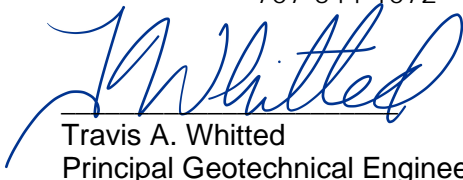
RGH Consultants


Santa Rosa Office

1305 North Dutton Avenue
Santa Rosa, CA 95401
707-544-1072

Napa Office

1041 Jefferson Street, Suite 4
Napa, CA 94559
707-252-8105


Travis A. Whitted
Principal Geotechnical Engineer


Eric G. Chase
Principal Geotechnical Engineer



September 26, 2022
(Revised September 25, 2023)

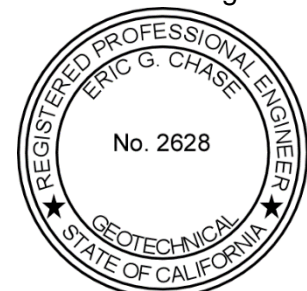


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INTRODUCTION

This report presents the results of our geotechnical study for the rehabilitation of Maria Drive from Rainier Avenue to South McDowell Boulevard in Petaluma, California. The site location is shown on Plate 1, Appendix A. Portions of the road are in poor condition. We understand it is planned to rehabilitate the road to current design standards.

SCOPE

The purpose of our study, as outlined in our Professional Service Agreement dated June 8, 2022, was to generate geotechnical information for the design and construction of the project. Our scope of services included reviewing selected published geologic data pertinent to the site; evaluating the roadway sections and subsurface conditions with borings and laboratory tests; analyzing the field and laboratory data; and presenting this report with the following geotechnical information:

1. A summary of the pavement sections and subgrade conditions encountered; and
2. Conclusions and recommendations regarding:
 - a. Primary geotechnical engineering concerns and mitigating measures, as applicable; and
 - b. Pavement rehabilitation options.

STUDY

Site Exploration

We reviewed our previous geotechnical studies in the vicinity, and the borings conducted as a part of our previous exploration conducted in 2019 for the City of Petaluma (City) along Maria Drive between Sonoma Mountain Parkway and East Washington Street. On July 12, 2022, we performed a geotechnical reconnaissance of the portion of Maria Drive being evaluated and explored the subsurface conditions by drilling 11 borings to depths ranging from about 1½ to 4 feet. The borings were drilled with a truck-mounted drill rig equipped with 4-inch diameter, solid stem augers at the approximate locations shown on the Exploration Plan, Plate 2. The boring locations were determined approximately by pacing their distance from features shown on the Exploration Plan and should be considered accurate only to the degree implied by the method used. Our project engineer located and logged the borings and obtained samples of the materials encountered for visual examination, classification, and laboratory testing. Disturbed “bulk” samples were obtained at selected depths from the borings and placed in plastic bags and buckets.

The table below shows our interpretation of pavement sections and subsurface soil conditions along the portion of Maria Drive being evaluated. Subsurface conditions may vary at other locations and times. Our interpretation is based on visual inspection of soil samples and laboratory test results. The location of the pavement and soil boundaries should be considered approximate. The transition between soil, aggregate, pavement, and other elements of the existing section may be gradual. It should be noted that borings B-11 through B-16 were conducted in 2019 as a part of a previous scope of work.

Existing Pavement Section Thicknesses				
Boring	Asphalt (in)	Aggregate Base (in)	Aggregate Subbase (in)	Subgrade Soil
B-11	2.5	15		Adobe Clay
B-12	2.5	18		Adobe Clay
B-13	5	15		Adobe Clay
B-14	5.5	8		Adobe Clay
B-15	5	7		Adobe Clay
B-16	4	8		Adobe Clay
B-17	6	3		Adobe Clay
B-18	4	3		Adobe Clay
B-19	3.5	12		Adobe Clay
B-20	3.5	12		Adobe Clay
B-21	3	12		Drilling Refusal
B-21a	3.5	11.5		Drilling Refusal
B-22	2.5	10.5		Adobe Clay
B-23	2.5	12		Adobe Clay
B-24	2.5	11		Adobe Clay
B-25	3	6	9	Adobe Clay
B-26	3	6	12	Adobe Clay
B-27	3	4	10	Adobe Clay

On May 9, 2023, we explored the existing pavement section materials and subgrade soil on Maria Drive between Joan Drive and Lauren Drive using an excavation performed by the City. Our engineer collected bulk samples of the existing aggregate base and subgrade soil (Adobe Clay) for visual examination, classification, and laboratory testing.

Laboratory Testing

The samples obtained from the borings were transported to our office and re-examined to verify soil classifications, evaluate characteristics, and assign tests pertinent to our analysis. Selected samples were laboratory tested to determine their grain size distribution and R-Value. Results of the grain size distribution and R-Value tests are presented on Plates 3 through 6.

We performed supplemental laboratory testing to assist in assessing Full Depth Reclamation (FDR) section rehabilitation options. The samples of the aggregate base and clay subgrade soil were mixed at 50 percent each by dry weight. The combined sample was divided into individual samples and initially mixed with two percentages of cement (3% and 7%) and subsequently cement and lime (3.5%/5%, 3%/3%, 2.5%/2.5%, and 2%/2%). Testing following Appendix B: Procedure LP-8-C of Caltrans guideline UCPRC-GL-2020-01, Version 2 was performed on these sample mixtures to determine their unconfined compressive strength per ASTM Test Method D-1633, Method A. For the samples that included lime, the sample was initially mixed with lime and allowed to cure for one day before adding the cement and creating the samples for strength testing. The results of these tests are presented on Plates 7 through 12.

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Pavement Rehabilitation Options

We understand that the design Traffic Index (TI) for Maria Drive is 8.0. Several rehabilitation options are available to improve the road to achieve a TI of 8.0. Based on our laboratory testing, we selected an R-value of 5 for use in pavement design calculations. The rehabilitation options evaluated included Full Depth Reclamation (FDR) and options that include removal and replacement of the existing pavement section with:

1. A new section consisting of aggregate base and hot-mix asphalt;
2. A new section consisting of full-depth hot-mix asphalt; and
3. A section consisting of Tensor geogrid, aggregate base, and hot-mix asphalt.

Recycling Materials

We understand that the ability to recycle materials is important for this project. Based on our observations, we anticipate that asphalt grindings and the existing aggregate base will be suitable for reuse as aggregate base in the new pavement sections. However, this should be verified with laboratory testing prior to, or during construction.

Furthermore, as has been done on previous projects for the City of Petaluma, we anticipate that the existing asphalt can be recycled and used as recycled asphalt in the new pavement section. The recycled asphalt should be a consistent lift thickness and be used in the lower lifts of the new section so that non-recycled asphalt is used for the finishing lift.

Section Replacement Option 1

The first rehabilitation option includes removal of the existing section and replacement with a more robust section consisting of aggregate base and hot-mix asphalt. Because the new section is thicker than any of the existing sections we measured during our exploration, the entire existing section and a portion of the subgrade soil will need to be removed to maintain the existing roadway grade. The new section should consist of 0.4 feet of asphalt over 1.55 feet of aggregate base. This section results in a TI of 8.0. Pavement thicknesses were computed using the Caltrans Highway Design Manual and are based on a pavement life of 20 years.

Section Replacement Option 2

The second rehabilitation option includes removal of the existing section and replacement with a new section consisting of full-depth asphalt. In some areas, the proposed section is thicker than the sections we measured during our exploration, so removal of the entire existing sections and a portion of the subgrade soil may be necessary. The new section should consist of 1.0 feet of asphalt. This section results in a TI of 8.0. Pavement thicknesses were computed using the Caltrans Highway Design Manual and are based on a pavement life of 20 years.

Section Replacement Option 3

The third rehabilitation option includes removal of the existing section and replacement with a new section consisting of Tensar geogrid, aggregate base, and asphalt. In some areas, the proposed section is thicker than the sections we measured during our exploration, so removal of the entire existing section and a portion of the subgrade soil may be necessary. The new section should consist of 0.42 feet (5 inches) of asphalt over 0.71 feet (8.5 inches) of aggregate base, with Tensar InterAx NX850 geogrid placed over the subgrade soil below the aggregate base. This section results in a TI of 8.0 and was developed in consultation with Tensar.

Full Depth Reclamation

Full depth reclamation is typically accomplished with cold foam or cement. We understand that cement is used for higher TI's such as required for Maria Drive. For full depth reclamation with cement (FDR-C), cement is mixed with the existing asphalt and/or aggregate base and typically does not extend into the subgrade soils, especially highly plastic and highly expansive soil such as the Adobe clay subgrade soil encountered throughout most of the stretch of Maria Drive being rehabilitated. Cement treatment depths are either 12 or 18 inches with the latter being the deepest possible treatment depth due to equipment limitations. Our initial section calculations found that the treatment depth would need to extend into the clay subgrade soil. Therefore, additional laboratory testing was performed to assess what combination of additives, cement and/or lime, is required to meet the minimum strength requirements per the Caltrans design procedure for FDR. Based on the results of laboratory testing, FDR consisting of at least 2% (by dry weight) high calcium lime and 2% (by dry weight) cement provides at least the minimum FDR design strength of 400 pounds per square inch (psi) per Caltrans. With this information, we calculated FDR sections of varying thickness combined with different options for asphalt. Per the request of the City, we considered Cold Central Plant Recycling (CCPR) for a portion of the asphalt. CCPR recycles the existing asphalt to use as part of the new asphalt section. CCPR is not directly equivalent to hot-mix asphalt,

therefore the total asphalt section is thicker when CCPR is used. The calculated FDR sections for a TI of 8.0 are presented in the table below.

FULL DEPTH RECLAMATION SECTIONS – 2% LIME & 2% CEMENT		
FDR Treatment Depth (inches)	CCPR (inches)	Hot Mix Asphalt (inches)
12	3.0	3.6
12	---	6.0
14	---	4.8

Design Limitations

These recommendations are intended to provide support for traffic represented by the indicated Traffic Indices. They are not intended to provide pavement sections for heavy concentrated construction storage or wheel loads such as forklifts, parked truck-trailers and concrete trucks. In areas where heavy construction storage and wheel loads are anticipated, the pavements should be designed to support these loads. Support could be provided by increasing pavement sections or by providing reinforced concrete slabs.

Expansive Soils

Expansive surface soil shrinks and swells as it loses and gains moisture throughout the yearly weather cycle. Near the surface, the resulting movement can heave and crack pavements. The zone of significant moisture variation (active layer) is dependent on the expansion potential of the soil and the extent of the dry season. In the Petaluma area, the active layer is generally considered to range in thickness from about 2 to 3 feet. As presented earlier, the subgrade soil for large stretches of Maria Drive is Adobe clay, which is highly expansive. The detrimental effects of the above-described movement can be reduced by pre-swelling the expansive soil and covering it with a moisture fixing and confining blanket of at least 12 inches of select fill, which is non-expansive fill, that extends at least 3 feet beyond the edge of the asphalt. This recommendation works well for construction of new roadways; however, it is not typically feasible for rehabilitation of old roadways where there is already curb, gutter, and sidewalk and usually shallow utilities. The problem with the latter is that the 12 inches of select fill makes the overall pavement section significantly thicker, which moves the bottom of the section closer to existing utilities.

For rehabilitation of streets, there are other factors to consider regarding expansive soil. The stretch of Maria Drive covered by this project has sidewalks immediately behind the curb and gutter as there are no planting strips. This helps with potential moisture variation under the pavement section as the sidewalk helps to lengthen the drainage pathway for subgrade soil to dry during the periods of time with no rain. This benefits all the pavement sections presented in this report. Another way to lengthen the drainage pathway is using a thicker overall pavement section. For this project, this is the benefit of the traditional asphalt over aggregate base section, which is the thickest of the sections presented herein. Finally, geogrid may also help reduce movements related to expansive soil shrinking and swelling. It helps to smooth the movements over a distance, so that the stress does not immediately move to the asphalt surface. This

means that the geogrid section presented herein, although thinner, should perform reasonably well in these expansive soil conditions. Another layer of geogrid could be added to that section to give even better performance.

Construction Recommendations

This section presents general recommendations for the construction of FDR and the removal and replacement options presented herein prior to placement of asphalt. Tensar should be consulted for specific recommendations regarding preparation for and placement of geotextiles.

Full Depth Reclamation (FDR) - The design FDR sections include cement and high calcium lime. Prior to treatment with cement and lime, the existing asphalt and aggregate base should be removed to a depth that allows for placement of the design asphalt section and allows for the fluff created by the treatment of the in-place materials. After removal, the design lime percentage should be spread and mixed to the design treatment depth on the first treatment day. This mixture should be allowed to sit until at least the next day. On the second day, the design cement percentage should be spread and mixed to the design treatment depth. Mixing operations should be performed in accordance with Caltrans Standard Specifications. The completed treatment zone should be compacted to at least 95 percent relative compaction to form a firm, non-yielding surface.

Section Removal and Replacement Options - Prior to placement of aggregate base for options 1 and 3 and asphalt for option 2, the upper 6 inches of the pavement subgrade soil should be scarified, uniformly moisture-conditioned to near optimum, and compacted to at least 95 percent relative compaction to form a firm, non-yielding surface. For option 3, the recommended Tensar geogrid should be placed on approved subgrade in accordance with Tensar’s recommendations. Aggregate base materials should be spread on the subgrade (Option 1) or geogrid (Option 3) in thin layers, uniformly moisture-conditioned, and compacted to at least 95 percent relative compaction to form a firm, non-yielding surface. The materials and methods used should conform to the requirements of the City of Petaluma and the current edition of the Caltrans Standard Specifications, except that compaction requirements should be based on ASTM Test Method D-1557. Aggregate used for the base course should comply with the minimum requirements specified in Caltrans Standard Specifications, Section 26 for Class 2 Aggregate Base.

Wet Weather Paving - In general, the pavements should be constructed during the dry season to avoid the saturation of the subgrade and base materials, which often occurs during the wet winter months. If pavements are constructed during the winter, a cost increase relative to drier weather construction should be anticipated. Unstable areas may have to be overexcavated to remove soft soil. The excavations will probably require backfilling with imported crushed (ballast) rock. The geotechnical engineer should be consulted for recommendations at the time of construction.

Supplemental Services

Pre-Bid Meeting

It has been our experience that contractors bidding on the project often contact us to discuss the geotechnical aspects. Informal contacts between RGH Consultants (RGH) and an individual contractor could result in incomplete or misinterpreted information being provided to the contractor. Therefore, we recommend a pre-bid meeting be held to answer any questions about the report prior to submittal of bids. If this is not possible, questions or clarifications regarding this report should be directed to the project owner or their designated representative. After consultation with RGH, the project owner or their representative should provide clarifications or additional information to all contractors bidding the job.

Plan and Specifications Review

Coordination between the design team and the geotechnical engineer is recommended to assure that the design is compatible with the soil, geologic and groundwater conditions encountered during our study. RGH recommends that we be retained to review the project plans and specifications to determine if they are consistent with our recommendations. In the event we are not retained to perform this recommended review, we will assume no responsibility for misinterpretation of our recommendations.

Construction Observation and Testing

Prior to construction, a meeting should be held at the site that includes, but is not limited to, the owner or owner’s representative, the general contractor, the grading contractor, the underground contractor, any specialty contractors, the project civil engineer, other members of the project design team and RGH. This meeting should serve as a time to discuss and answer questions regarding the recommendations presented herein and to establish the coordination procedure between the contractors and RGH.

In addition, we should be retained to monitor all soil related work during construction. If, during construction, we observe subsurface conditions different from those encountered during the explorations, we should be allowed to amend our recommendations accordingly. If different conditions are observed by others, or appear to be present beneath excavations, RGH should be advised at once so that these conditions may be evaluated and our recommendations reviewed and updated, if warranted. The validity of recommendations made in this report is contingent upon our being notified and retained to review the changed conditions.

If more than 18 months have elapsed between the submission of this report and the start of work at the site, or if conditions have changed because of natural causes or construction operations at, or adjacent to, the site, the recommendations made in this report may no longer be valid or appropriate. In such case, we recommend that we be retained to review this report and verify the applicability of the conclusions and recommendations or modify the same considering the time lapsed or changed conditions. The validity of recommendations made in this report is contingent upon such review.

These supplemental services are performed on an as-requested basis and are in addition to this geotechnical study. We cannot accept responsibility for items that we are not notified to observe or for changed conditions we are not allowed to review.

LIMITATIONS

This report has been prepared by RGH for the exclusive use of BKF Engineers and the City of Petaluma and their consultants as an aid in the design and construction of the proposed improvements described in this report.

The validity of the recommendations contained in this report depends upon an adequate testing and monitoring program during the construction phase. Unless the construction monitoring and testing program is provided by our firm, we will not be held responsible for compliance with design recommendations presented in this report and other addendum submitted as part of this report.

Our services consist of professional opinions and conclusions developed in accordance with generally accepted geotechnical engineering principles and practices. We provide no warranty, either expressed or implied. Our conclusions and recommendations are based on the information provided to us regarding the proposed construction, the results of our field exploration, laboratory testing program, and professional judgment. Verification of our conclusions and recommendations is subject to our review of the project plans and specifications, and our observation of construction.

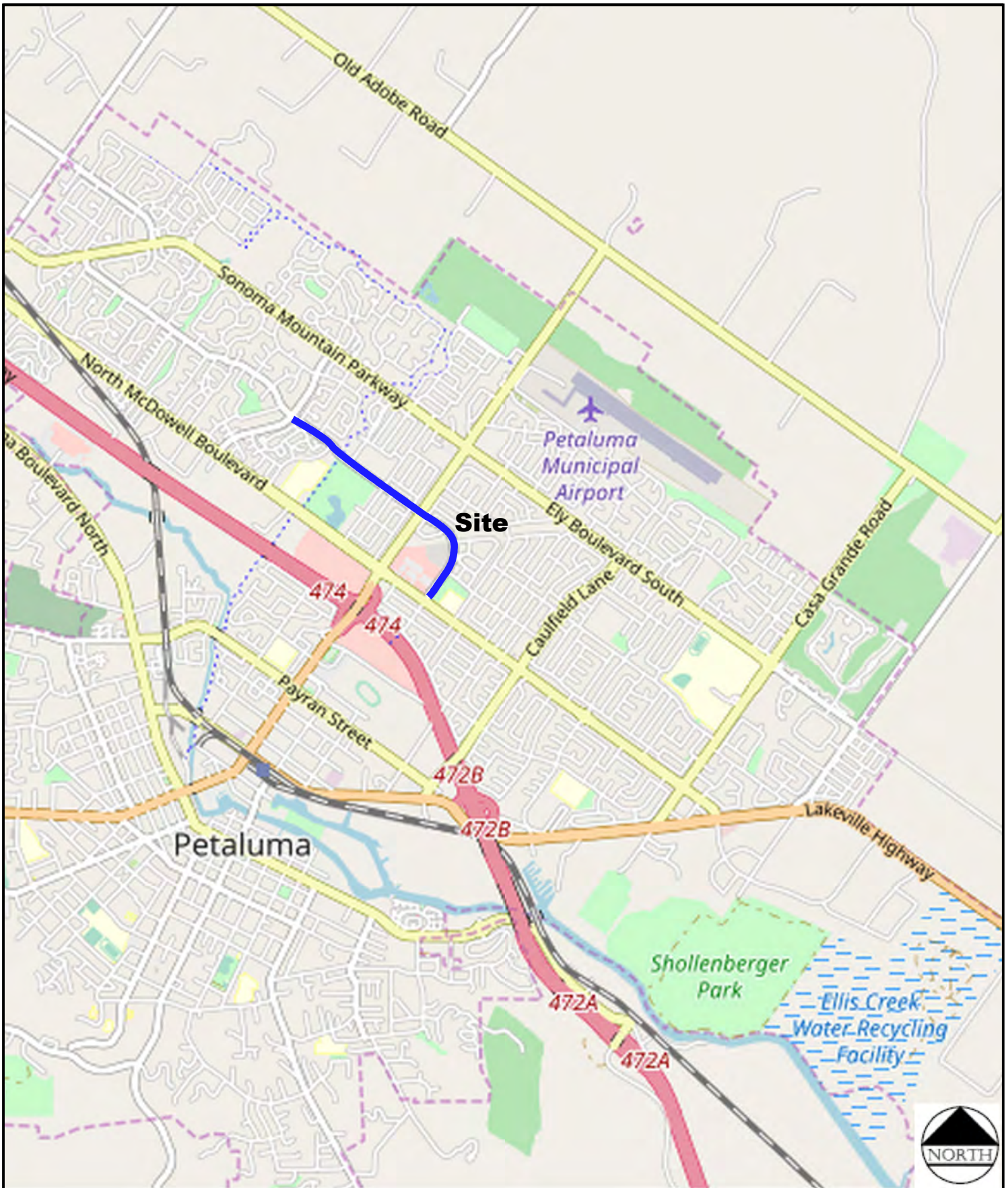
The borings and logs of utility trenches represent the subsurface conditions at the locations and on the date indicated. It is not warranted that they are representative of such conditions elsewhere or at other times. Site conditions and cultural features described in the text of this report are those existing at the time of our field exploration and may not necessarily be the same or comparable at other times.

The scope of our services did not include an environmental assessment or a study of the presence or absence of toxic mold and/or hazardous, toxic or corrosive materials in the soil, surface water, groundwater or air (on, below or around this site), nor did it include an evaluation or study for the presence or absence of wetlands. These studies should be conducted under separate cover, scope and fee and should be provided by a qualified expert in those fields.

APPENDIX A - PLATES

LIST OF PLATES

Plate 1	Site Location Map
Plate 2	Exploration Plan
Plates 3 and 4	Particle Size Analysis Data
Plates 5 and 6	Resistance (R) Value Data
Plates 7 through 12	Unconfined Compressive Strengths



Reference: Mapline

Scale: 1" = 3000'

RGH
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SITE LOCATION MAP

Maria Drive - Rainier to S. McDowell
 Maria Drive - Rainier Avenue to S. McDowell Boulevard
 Petaluma, California

PLATE

1



EXPLANATION

B-3 2022 Boring Location and Number

B-3 2019 Boring Location and Number

500 0 500 feet

Reference: Google Earth, September 2022

Scale: 1" = 500'

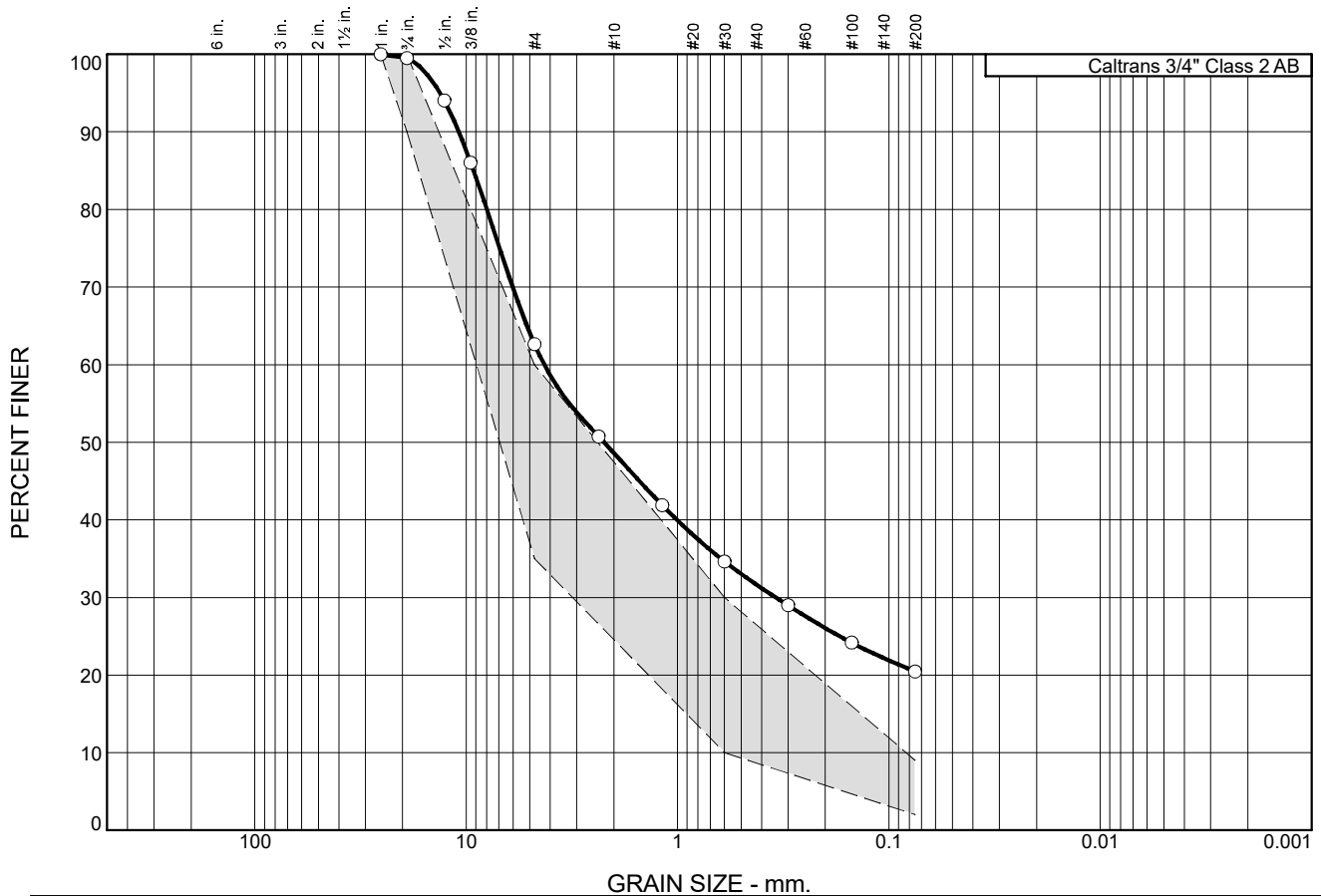
RGH
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Job No: 6498.18.PW.1 | Date: SEPT 2022

EXPLORATION PLAN
 Maria Drive - Rainier to S. McDowell
 Maria Drive - Rainier Avenue to S. McDowell Boulevard
 Petaluma, California

PLATE
2

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.5	36.9	14.0	16.9	11.3	20.4	

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	Bucket 3	B-9 to B-11	1.0'-1.5'	Gray Clayey Sand W/ Gravel (SC)	SC
Reported 7/25/22					

	Client: RGH Consultants Project: Maria Drive - Rainier to South McDowell Blvd. Project No.: 6498.18.PW.1	Figure
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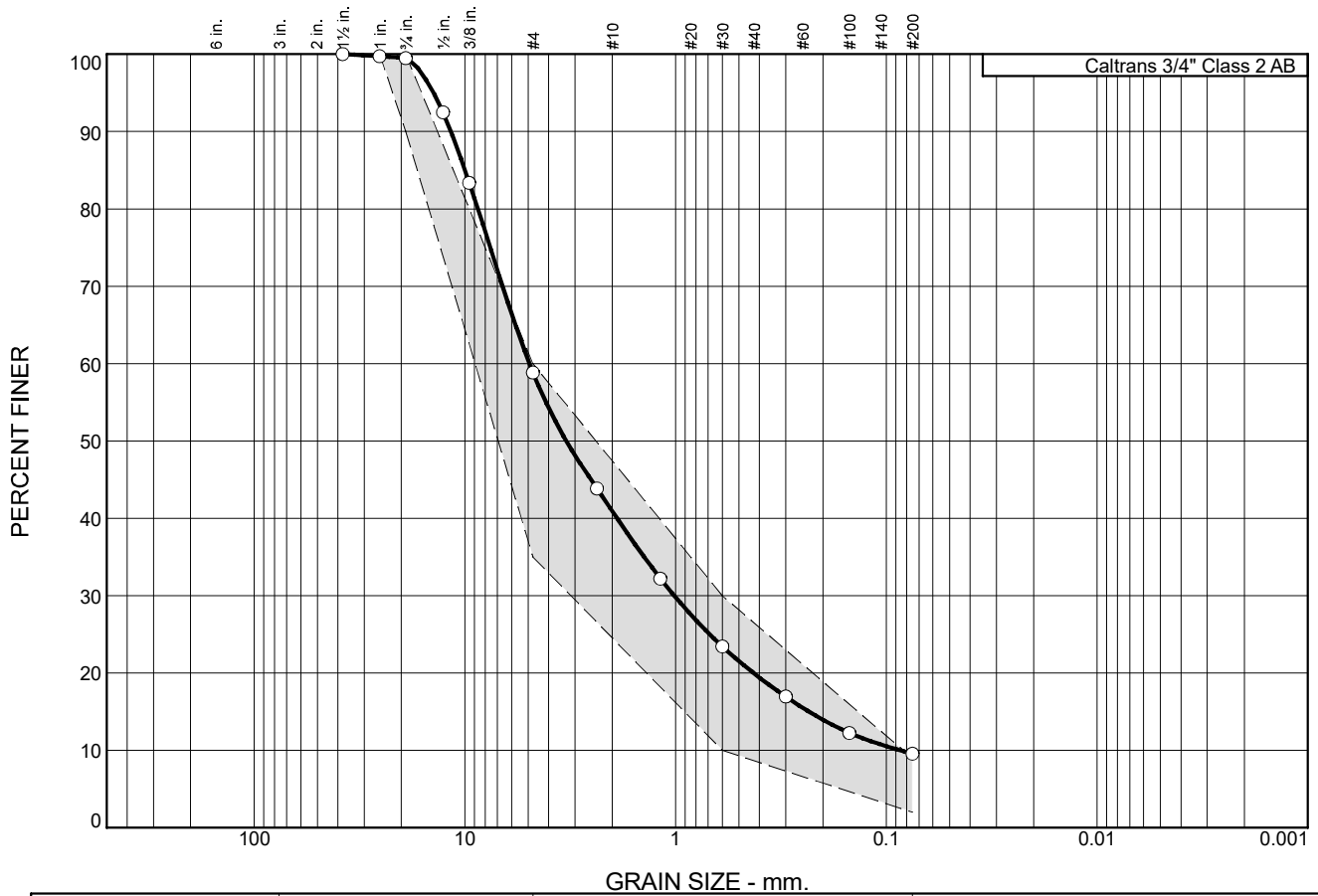
Tested By: SAM

Checked By: SEF

	Job No: 6498.18.PW.1 Date: SEPT 2022
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PARTICLE SIZE ANALYSIS
 Maria Drive - Rainier to S. McDowell
 Maria Drive - Rainier Avenue to S. McDowell Boulevard
 Petaluma, California

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.5	40.6	18.0	20.9	10.4	9.6	

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	Buckets 1 & 2			Gray Sand W/ Silt & Gravel (SP-SM)	SP-SM
	Composite			AB + AC	
				Reported 7/25/22	

	Client: RGH Consultants Project: Maria Drive - Rainier to South McDowell Blvd. Project No.: 6498.18.PW.1 Figure
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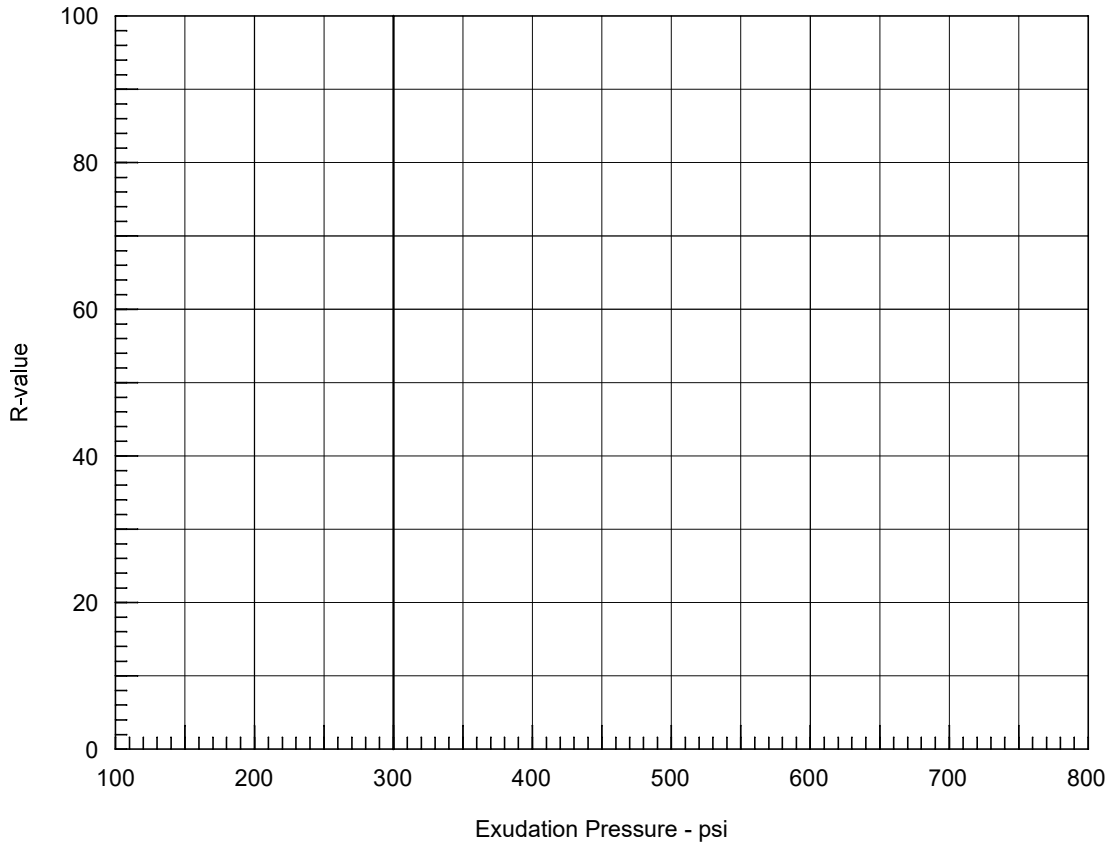
Tested By: SAM

Checked By: SEF

	PARTICLE SIZE ANALYSIS Maria Drive - Rainier to S. McDowell Maria Drive - Rainier Avenue to S. McDowell Boulevard Petaluma, California
Job No: 6498.18.PW.1	Date: SEPT 2022


PLATE 4

R-VALUE TEST REPORT

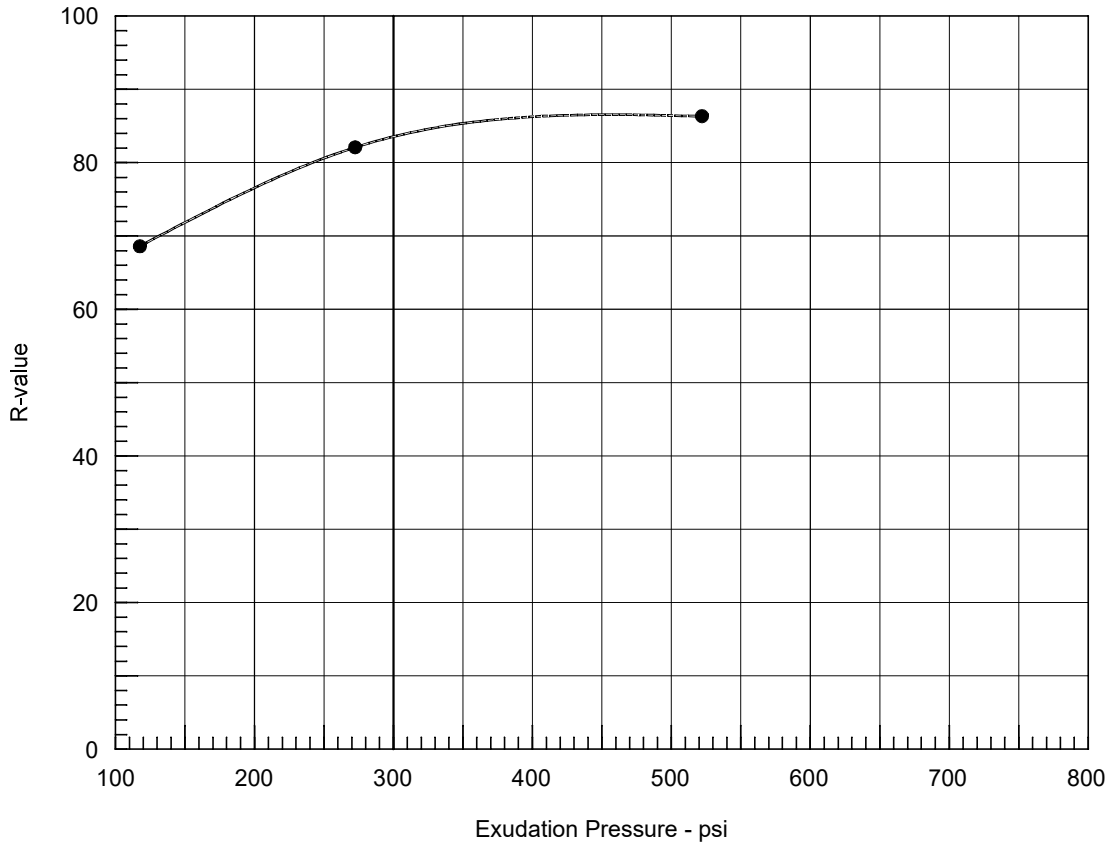


Resistance R-Value and Expansion Pressure - ASTM D2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psf	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.

Test Results	Material Description
R-value at 300 psi exudation pressure = n/a	Dark Gray/Brown Clay (CH)
Project No.: 6498.18.PW.1 Project: Maria Drive - Rainier to South McDowell Blvd. Source of Sample: Bucket 4 Date: 7/25/2022	Tested by: SAM Checked by: SEF Remarks: Sample Ribboned Under Mold & Failed To Produce 5 Lights. R-Value Should Be Considered <5.
	Figure _____

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - ASTM D2844

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psf	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	300	132.6	8.1	0	30	2.53	117	69	69
2	350	132.5	7.6	0	17	2.50	272	82	82
3	350	129.1	7.0	0	14	2.61	522	85	86

Test Results	Material Description
R-value at 300 psi exudation pressure = 84	Gray Sand W/ Silt & Gravel (SP-SM)
Project No.: 6498.18.PW.1 Project: Maria Drive - Rainier to South McDowell Blvd. Source of Sample: Buckets 1 & 2 Composite Date: 7/25/2022	Tested by: SAM Checked by: SEF Remarks: AB + AC



Figure _____



RESISTANCE (R) VALUE DATA

Maria Drive - Rainier to S. McDowell
 Maria Drive - Rainier Avenue to S. McDowell Boulevard
 Petaluma, California

PLATE

6



Santa Rosa Office
 1305 North Dutton Ave
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 707-544-1072

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 1041 Jefferson St, Suite 4
 Napa, CA 94559
 707-252-8105

**Caltrans Full Depth Reclamation - Cement
 Guideline: UCPRC-GL-2020-01, Version 2 - Appendix B: Procedure LP-8-C**

Project:	Maria Dr. Rehab-Rainier to South McDowell	Sampled:	5/9/2023
Project #:	2553.24.PW.1 (Phase 30)	Received:	5/9/2023
Sample ID:	FDR-C (3%)	Reported:	6/1/2023
Source:	Onsite		
Description:	Dark Gray/Black Clayey Gravel (GC)		
Notes:	Samples consist of approximately 50% AC/AB and 50% native subgrade treated with 3% cement		

ASTM D-1557 (Method C)		3/4" Passing & Retained	
Maximum Dry Density	124.0 pcf	Passing:	91.8%
Optimum Moisture Content	11.5%	Retained:	8.2%

Unconfined Compressive Strength (ASTM D-1633 - Method A)

Specimen Diameter:	4.0	inches
Specimen Height:	4.584	inches
Cross-Sectional Area:	12.566	inches ²

Specimens separated on 3/4" sieve. Passing material treated with 3% cement and remolded to target maximum dry density at optimum moisture content. Specimens sealed in plastic and cured in oven at 104°F +/- 3° for 7 days.

	Specimen 1	Specimen 2	Specimen 3	Average
Admixture	3% Cement	3% Cement	3% Cement	
Moisture Content @ Remold	12.0%	11.8%	11.8%	11.9%
Remolded Dry Density (pcf)	122.8	123.3	123.7	123.3
Specimen Weight @ Test (g)	2073.9	2073.9	2085.4	2077.7
Maximum Load (lbs/ft)	2195	2104	2047	2115
Maximum Load (psi)	175	167	163	168
Post Test Moisture Content	11.7%	11.6%	11.6%	11.6%



UNCONFINED COMPRESSIVE STRENGTHS
 Maria Drive - Rainier to S. McDowell
 Maria Drive - Rainier Avenue to S. McDowell Boulevard
 Petaluma, California

PLATE

7



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Caltrans Full Depth Reclamation - Cement
Guideline: UCPRC-GL-2020-01, Version 2 - Appendix B: Procedure LP-8-C

Project:	Maria Dr. Rehab-Rainier to South McDowell	Sampled:	5/9/2023
Project #:	2553.24.PW.1 (Phase 30)	Received:	5/9/2023
Sample ID:	FDR-C (7%)	Reported:	6/1/2023
Source:	Onsite		
Description:	Dark Gray/Black Clayey Gravel (GC)		
Notes:	Samples consist of approximately 50% AC/AB and 50% native subgrade treated with 7% cement		

ASTM D-1557 (Method C)		3/4" Passing & Retained	
Maximum Dry Density	124.0 pcf	Passing:	91.3%
Optimum Moisture Content	11.5%	Retained:	8.7%

Unconfined Compressive Strength (ASTM D-1633 - Method A)

Specimen Diameter:	4.0	inches
Specimen Height:	4.584	inches
Cross-Sectional Area:	12.566	inches ²

Specimens separated on 3/4" sieve. Passing material treated with 7% cement and remolded to target maximum dry density at optimum moisture content. Specimens sealed in plastic and cured in oven at 104°F +/- 3° for 7 days.

	Specimen 1	Specimen 2	Specimen 3	Average
Admixture	7% Cement	7% Cement	7% Cement	
Moisture Content @ Remold	12.3%	12.1%	11.7%	12.0%
Remolded Dry Density (pcf)	123.4	123.4	123.2	123.3
Specimen Weight @ Test (g)	2088.7	2085.9	2074.4	2083.0
Maximum Load (lbs/ft)	2606	2643	2548	2599
Maximum Load (psi)	207	210	203	207
Post Test Moisture Content	11.4%	11.6%	11.2%	11.4%

RGH
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Job No: 6498.18.PW.1 | Date: SEPT 2022

UNCONFINED COMPRESSIVE STRENGTHS
 Maria Drive - Rainier to S. McDowell
 Maria Drive - Rainier Avenue to S. McDowell Boulevard
 Petaluma, California

PLATE
8



Santa Rosa Office
 1305 North Dutton Ave
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Caltrans Full Depth Reclamation - Cement & Lime
Guideline: UCPRC-GL-2020-01, Version 2 - Appendix B: Procedure LP-8-C

Project:	Maria Dr. Rehab-Rainier to South McDowell	Sampled:	5/9/2023
Project #:	2553.24.PW.1 (Phase 30)	Received:	5/9/2023
Sample ID:	FDR-C & Lime (3% Cement & 3% Lime)	Reported:	6/20/2023
Source:	Onsite		
Description:	Dark Gray/Black Clayey Gravel (GC)		
Notes:	Samples consist of approx. 50% AC/AB & 50% native subgrade treated with 3% cement & 3% lime		

ASTM D-1557 (Method C)		3/4" Passing & Retained	
Maximum Dry Density	124.0 pcf	Passing:	90.2%
Optimum Moisture Content	11.5%	Retained:	9.8%

Unconfined Compressive Strength (ASTM D-1633 - Method A)

Specimen Diameter:	4.0	inches	Specimens separated on 3/4" sieve. Passing material treated with 3% cement & 3% lime and remolded to target maximum dry density at optimum moisture content. Specimens sealed in plastic and cured in oven at 104 °F +/- 3 for 7 days.
Specimen Height:	4.584	inches	
Cross-Sectional Area:	12.566	inches ²	

	Specimen 1	Specimen 2	Specimen 3	Average
Admixture	3% Cement & 3% Lime	3% Cement & 3% Lime	3% Cement & 3% Lime	
Moisture Content @ Remold	10.5%	10.9%	10.8%	10.7%
Remolded Dry Density (pcf)	124.5	123.7	124.1	124.1
Specimen Weight @ Test (g)	2072.1	2067.3	2066.7	2068.7
Maximum Load (lbs/ft)	4104	3817	3272	3731
Maximum Load (psi)	327	304	260	297
Post Test Moisture Content	10.3%	10.3%	10.3%	10.3%



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Caltrans Full Depth Reclamation - Cement & Lime
Guideline: UCPRC-GL-2020-01, Version 2 - Appendix B: Procedure LP-8-C

Project:	Maria Dr. Rehab-Rainier to South McDowell	Sampled:	5/9/2023
Project #:	2553.24.PW.1 (Phase 30)	Received:	5/9/2023
Sample ID:	FDR-C & Lime (3% Cement & 5% Lime)	Reported:	6/20/2023
Source:	Onsite		
Description:	Dark Gray/Black Clayey Gravel (GC)		
Notes:	Samples consist of approx. 50% AC/AB & 50% native subgrade treated with 3% cement & 5% lime		

ASTM D-1557 (Method C)		3/4" Passing & Retained	
Maximum Dry Density	124.0 pcf	Passing:	90.2%
Optimum Moisture Content	11.5%	Retained:	9.8%

Unconfined Compressive Strength (ASTM D-1633 - Method A)

Specimen Diameter:	4.0	inches	Specimens separated on 3/4" sieve. Passing material treated with 3% cement & 5% lime and remolded to target maximum dry density at optimum moisture content. Specimens sealed in plastic and cured in oven at 104 °F +/- 3 for 7 days.
Specimen Height:	4.584	inches	
Cross-Sectional Area:	12.566	inches ²	

	Specimen 1	Specimen 2	Specimen 3	Average
Admixture	3% Cement & 5% Lime	3% Cement & 5% Lime	3% Cement & 5% Lime	
Moisture Content @ Remold	10.0%	10.3%	10.0%	10.1%
Remolded Dry Density (pcf)	124.4	123.3	124.2	124.0
Specimen Weight @ Test (g)	2059.5	2048.3	2049.6	2052.5
Maximum Load (lbs/ft)	2320	2382	2770	2491
Maximum Load (psi)	185	190	220	198
Post Test Moisture Content	9.7%	9.6%	9.5%	9.6%

	UNCONFINED COMPRESSIVE STRENGTHS Maria Drive - Rainier to S. McDowell Maria Drive - Rainier Avenue to S. McDowell Boulevard Petaluma, California	PLATE 10
	Job No: 6498.18.PW.1 Date: SEPT 2022	



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**Caltrans Full Depth Reclamation - Cement & Lime
 Guideline: UCPRC-GL-2020-01, Version 2 - Appendix B: Procedure LP-8-C**

Project:	Maria Dr. Rehab - Rainier to South McDowell	Sampled:	5/9/2023
Project #:	2553.24.PW.1 (Phase 30)	Received:	5/9/2023
Sample ID:	FDR-C & Lime (2.5% Cement & 2.5% Lime)	Reported:	7/21/2023
Source:	Onsite		
Description:	Dark Gray/Black Clayey Gravel (GC)		
Notes:	Samples consist of approx. 50% AC/AB & 50% native subgrade treated with 2.5% cement & 2.5% lime		

ASTM D-1557 (Method C)		3/4" Passing & Retained	
Maximum Dry Density	124.0 pcf	Passing:	90.2%
Optimum Moisture Content	11.5%	Retained:	9.8%

Unconfined Compressive Strength (ASTM D-1633 - Method A)

Specimen Diameter:	4.0	inches
Specimen Height:	4.584	inches
Cross-Sectional Area:	12.566	inches ²

Specimens separated on 3/4" sieve. Passing material treated with 2.5% cement & 2.5% lime and remolded to target max dry density at optimum moisture content plus 3% to hydrate admixtures. Specimens sealed in plastic and cured in oven at 104°F +/- 3° for 7 days.

Specimens lime treated & moisture conditioned for 1 day. Cement & remaining required water added at remolding.				
	Specimen 2.5A	Specimen 2.5B	Specimen 2.5C	Average
Admixture	2.5% Cement & 2.5% Lime	2.5% Cement & 2.5% Lime	2.5% Cement & 2.5% Lime	
Moisture Content @ Remold	14.3%	13.7%	13.9%	14.0%
Remolded Dry Density (pcf)	118.8	120.3	119.2	119.4
Specimen Weight @ Test (g)	2048.7	2062.7	2049.1	2053.5
Maximum Load (lbs/ft)	6943	6897	6603	6814
Maximum Load (psi)	552	549	525	542
Post Test Moisture Content	13.5%	13.2%	13.5%	13.4%



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**Caltrans Full Depth Reclamation - Cement & Lime
 Guideline: UCPRC-GL-2020-01, Version 2 - Appendix B: Procedure LP-8-C**

Project:	Maria Dr. Rehab-Rainier to South McDowell	Sampled:	5/9/2023
Project #:	2553.24.PW.1 (Phase 30)	Received:	5/9/2023
Sample ID:	FDR-C & Lime (2% Cement & 2% Lime)	Reported:	7/21/2023
Source:	Onsite		
Description:	Dark Gray/Black Clayey Gravel (GC)		
Notes:	Samples consist of approx. 50% AC/AB & 50% native subgrade treated with 2% cement & 2% lime		

ASTM D-1557 (Method C)		3/4" Passing & Retained	
Maximum Dry Density	124.0 pcf	Passing:	90.2%
Optimum Moisture Content	11.5%	Retained:	9.8%

Unconfined Compressive Strength (ASTM D-1633 - Method A)

Specimen Diameter:	4.0	inches	Specimens separated on 3/4" sieve. Passing material treated with 2% cement & 2% lime and remolded to target max dry density at optimum moisture content plus 3% to hydrate admixtures. Specimens sealed in plastic and cured in oven at 104° F +/- 3° for 7 days.
Specimen Height:	4.584	inches	
Cross-Sectional Area:	12.566	inches ²	

Specimens lime treated & moisture conditioned for 1 day. Cement & remaining required water added at remolding.

	Specimen 2A	Specimen 2B	Specimen 2C	Average
Admixture	2% Cement & 2% Lime	2% Cement & 2% Lime	2% Cement & 2% Lime	
Moisture Content @ Remold	13.7%	13.7%	13.5%	13.6%
Remolded Dry Density (pcf)	120.1	119.8	120.0	120.0
Specimen Weight @ Test (g)	2061.4	2055.4	2055.8	2057.5
Maximum Load (lbs/ft)	6277	5924	6274	6158
Maximum Load (psi)	499	471	499	490
Post Test Moisture Content	13.6%	13.7%	13.5%	13.6%



UNCONFINED COMPRESSIVE STRENGTHS
 Maria Drive - Rainier to S. McDowell
 Maria Drive - Rainier Avenue to S. McDowell Boulevard
 Petaluma, California

PLATE

12

APPENDIX B - DISTRIBUTION

BKF Engineers (e)
Attention: Becky Dower
200 Fourth Street, Suite 300
Santa Rosa, CA 95401
bdower@bkf.com

EGC:TAW:lfc:brw

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Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one - not even you* - should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes - even minor ones - and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ-sometimes significantly from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led

to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the express purpose of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer For Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



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