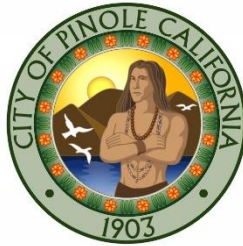


CITY OF PINOLE



CITY COUNCIL

Mayor, Devin Murphy
Mayor Pro Tem, Maureen Toms
Councilmember, Cameron Sasai
Councilmember, Anthony Tave
Councilmember, Norma Martinez-Rubin

INVITATION FOR BID AND CONTRACT DOCUMENTS FOR

SS-2201 Sanitary Sewer Rehabilitation Project (Phase 1)

CIP PROJECT No.: SS-2201

Bid Release Date: October 4, 2023

Questions concerning interpretation of plans, general provisions, special provisions, technical specifications and bid items shall be directed to:

City of Pinole, Public Works Department
Attn: Sanjay Mishra, P.E., T.E., Public Works Director
2131 Pear St, Pinole, CA 94564
Phone: (510) 724-9017 | Email: smishra@ci.pinole.ca.us

Office Hours: Monday – Friday 8:00AM to 4:30PM (PST/local time)

BID OPENING: October 25, 2023, at 2:00PM (PST/local time)

Release of IFB authorized by:

10/04/2023

Sanjay Mishra, P.E., T.E.
Public Works Director

Date

THIS PAGE INTENTIONALLY LEFT BLANK



I. BIDDING REQUIREMENTS

THIS PAGE INTENTIONALLY LEFT BLANK

NOTICE OF INVITATION FOR BIDS

1. RECEIPT OF BIDS: Sealed Bids will be received at the office of the City of Pinole (City) located at **2131 Pear Street, Pinole, CA 94564**, until **2:00 PM on Wednesday, October 25, 2023**, for the SS-2201 Sanitary Sewer Rehabilitation Project (Phase 1). Any Bids received after the specified time and date will not be considered. Fax and other electronically transmitted Bids will not be accepted.
2. OPENING OF BIDS: The Bids will be publicly opened and read at **2:00 PM on Wednesday, October 25, 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 forty (40) working days after the commencement date stated in the Notice to Proceed.
4. DESCRIPTION OF WORK: The WORK includes:
 - Replacing existing sanitary sewer pipelines by open-trench,
 - Sawcutting,
 - Excavation,
 - Backfill,
 - Reconnecting laterals,
 - Manhole replacement
 - Manhole and Sewer Pipe abandonment
 - Asphalt concrete restoration,
 - CCTV inspection,
 - Traffic control, and
 - Bypass pumping
5. ENGINEER'S COST ESTIMATE: The design engineer's opinion of probable construction cost for this project is approximately \$1,150,000.00.
6. SITE OF WORK: The site of the WORK is located: Orleans Drive in Pinole, California from Tennent Ave to West End.
7. OBTAINING CONTRACT DOCUMENTS: The Contract Documents are entitled "SS-2202 Sanitary Sewer Rehabilitation Project (Phase 1)."

Documents can be downloaded free of charge through the City's webpage at <https://www.ci.pinole.ca.us/bids>. Bid documents will also be posted on www.publicpurchase.com.

8. 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 ten (10) percent of the Total Bid Price payable to the City of Pinole 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.

9. **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.
10. **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 fourteen (14) days following submission of its Bid. Substantiation data will conform to the requirements of the instructions for Proposed Substitutions or "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" item will be considered by the ENGINEER after award of the Contract.
11. **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.
12. **BIDS TO REMAIN OPEN:** The Bidder shall guarantee the total bid price for a period of one hundred and twenty (120) calendar days from the date of bid opening.
13. **CALIFORNIA WAGE RATE REQUIREMENTS:** In accordance with the provisions of California Labor Code Sections 1770, 1773, 1773.1, 1773.6 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. 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.
14. **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 the contract is awarded.
15. **RETAINAGE FROM PAYMENTS:** The CONTRACTOR may elect to receive one hundred percent (100%) 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.

16. 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).
17. PRE-BID CONFERENCE/SITE VISITS: [At least one box below MUST be checked]

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

Mandatory pre-bid conference/site visit to be held: Prospective bidders are required to attend a mandatory pre-bid at _____ on ** _____, via web-conference _____ and it will be a recorded event. Further details of the virtual meeting is provided below. Prospective bidders that fail to attend the mandatory pre-bid conference will be ineligible to bid on the project. Prospective bidders may conduct site visit on their own. Following the conference at City offices, City staff and prospective bidders attending in person may 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.

Details of the Mandatory Pre-bid meeting

Not applicable

Non-mandatory pre-bid conference/site visit to be held: Prospective bidders are invited to attend a non-mandatory pre-bid conference/site visit _____ on xxxx, month xx, yyyy, at the City office at _____. 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.

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

NAME	Sanjay Mishra, P.E., T.E. Public Works Director
ADDRESS	2131 Pear Street Pinole, CA 94564
PHONE	(510) 724 - 9017
Email	smishra@ci.pinole.ca.us

19. 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.

END OF NOTICE OF INVITATION FOR BIDS

INSTRUCTIONS TO BIDDERS

1. **DEFINED TERMS.** Terms used in these Instructions to Bidders and the Notice of Invitation for 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 the City of Pinole ("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 5 days prior to due 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(s) may 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 General Conditions, Special Provisions and Specifications 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 Sections 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 Section 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 Contract documents.
- 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 Sections 1-4.02, 1-4.03, and 1-4.04 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 two (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 Section 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.

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.

- 62 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.
- 63 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. A bidder who is ineligible to perform work on a public works project pursuant to Sections 1777.1 or 1777.7 of the Labor Code is prohibited from bidding on this project.
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 Engineer before 5:00PM (PST/Local Time) 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 section 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 who's 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 (2) Bid Schedules which are alternative to each other, only one (1) 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 the 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

THIS PAGE INTENTIONALLY LEFT BLANK

NON-COLLUSION SUBMITTED WITH BID

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

Executed on _____ at _____
(DATE) (PLACE)

SIGNATURE

Public Contract Code section 7106
Code of Civil Procedure section 2015.5

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

LEVIN ACT DISCLOSURE STATEMENT SUBMITTED WITH BID

BIDDER'S AFFIDAVIT OF LEVIN ACT DISCLOSURE STATEMENT

California Government Code § 84308, commonly referred to as the "Levine Act," precludes an Officer of a local government agency from participating in the award of a contract if he or she receives any political contributions totaling more than \$250 in the 12 months preceding the pendency of the contract award, and for three months following the final decision, from the person or company awarded the contract. This prohibition applies to contributions to the Officer, or received by the Officer on behalf of any other Officer, or on behalf of any candidate for office or on behalf of any committee. The Levine Act also requires disclosure of such contributions by a party to be awarded a specified contract. Please refer to the attachment for the complete statutory language.

Current members of the AGENCY are:

- Mayor, Devin Murphy
- Mayor Pro Tem, Maureen Toms
- Councilmember, Cameron Sasai
- Councilmember, Anthony Tave
- Councilmember, Norma Martinez-Rubin

1. Have you or your company, or any agent on behalf of you or your company, made any political contributions of more than \$250 to any member of the AGENCY in the 12 months preceding the date of the issuance of this request for proposal or request for qualifications?

YES NO

If yes, please identify the Director(s): _____

2. Do you or your company, or any agency on behalf of you or your company, anticipate or plan to make any political contributions of more than \$250 to any member of the AGENCY in the three months following the award of the contract?

YES NO

If yes, please identify the Director(s): _____

Answering yes to either of the two questions above does not preclude AGENCY from awarding a contract to your firm. It does, however, preclude the identified AGENCY members from participating in the contract award process for this contract.

DATE (SIGNATURE OF AUTHORIZED OFFICIAL)

(TYPE OR WRITE APPROPRIATE NAME, TITLE)

(TYPE OR WRITE NAME OF COMPANY)

California Government Code Section 84308

(a) The definitions set forth in this subdivision shall govern the interpretation of this section.

(1) "Party" means any person who files an application for, or is the subject of, a proceeding involving a license, permit, or other entitlement for use.

(2) "Participant" means any person who is not a party but who actively supports or opposes a particular decision in a proceeding involving a license, permit, or other entitlement for use and who has a financial interest in the decision, as described in Article 1 (commencing with Section 87100) of Chapter 7. A person actively supports or opposes a particular decision in a proceeding if he or she lobbies in person the officers or employees of the agency, testifies in person before the agency, or otherwise acts to influence officers of the agency.

(3) "Agency" means an agency as defined in Section 82003 except that it does not include the courts or any agency in the judicial branch of government, local governmental agencies whose members are directly elected by the voters, the Legislature, the Board of Equalization, or constitutional officers. However, this section applies to any person who is a member of an exempted agency but is acting as a voting member of another agency.

(4) "Officer" means any elected or appointed officer of an agency, any alternate to an elected or appointed officer of an agency, and any candidate for elective office in an agency.

(5) "License, permit, or other entitlement for use" means all business, professional, trade and land use licenses and permits and all other entitlements for use, including all entitlements for land use, all contracts (other than competitively bid, labor, or personal employment contracts), and all franchises.

(6) "Contribution" includes contributions to candidates and committees in federal, state, or local elections.

(b) No officer of an agency shall accept, solicit, or direct a contribution of more than two hundred fifty dollars (\$250) from any party, or his or her agent, or from any participant, or his or her agent, while a proceeding involving a license, permit, or other entitlement for use is pending before the agency and for three months following the date a final decision is rendered in the proceeding if the officer knows or has reason to know that the participant has a financial interest, as that term is used in Article 1 (commencing with Section 87100) of Chapter 7. This prohibition shall apply regardless of whether the officer accepts, solicits, or directs the contribution for himself or herself, or on behalf of any other officer, or on behalf of any candidate for office or on behalf of any committee.

(c) Prior to rendering any decision in a proceeding involving a license, permit or other entitlement for use pending before an agency, each officer of the agency who received a contribution within the preceding 12 months in an amount of more than two hundred fifty dollars (\$250) from a party or from any participant shall disclose that fact on the record of the proceeding. No officer of an agency shall make, participate in making, or in any way attempt to use his or her official position to influence the decision in a proceeding involving a license, permit, or other entitlement for use pending before the agency if the officer has willfully or knowingly received a contribution in an amount of more than two hundred fifty dollars (\$250) within the preceding 12 months from a party or his or her agent, or from any participant, or his or her agent if the officer knows or has reason to know that the participant has a financial interest in the decision, as that term is described with respect to public officials in Article 1 (commencing with Section 87100) of Chapter 7. If an officer receives a contribution which would otherwise require disqualification under this section, returns the contribution within 30 days from the time he or she knows, or should have known, about the contribution and the proceeding involving a license, permit, or other entitlement for use, he or she shall be permitted to participate in the proceeding.

(d) A party to a proceeding before an agency involving a license, permit, or other entitlement for use shall disclose on the record of the proceeding any contribution in an amount of more than two hundred fifty dollars (\$250) made within the preceding 12 months by the party, or his or her agent, to any officer of the agency. No party, or his or her agent, to a proceeding involving a license, permit, or other entitlement for use pending before any agency and no participant, or his or her agent, in the proceeding shall make a contribution of more than two hundred fifty dollars (\$250) to any officer of that agency during the proceeding and for three months following the date a final decision is rendered by the agency in the proceeding. When a closed corporation is a party to, or a participant in, a proceeding involving a license, permit, or other entitlement for use pending before an agency, the majority shareholder is subject to the disclosure and prohibition requirements specified in subdivisions (b), (c), and this subdivision.

(e) Nothing in this section shall be construed to imply that any contribution subject to being reported under this title shall not be so reported.

For more information, contact the Fair Political Practices Commission, 1102 Q St #3000, Sacramento, CA 95811, (916) 322-5660.

LOBBYING CERTIFICATION SUBMITTED WITH BID

LOBBYING CERTIFICATION SUBMITTED WITH BID

The BIDDER certifies, to the best of its Knowledge and belief, that:

- (1) No Federally appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of a Federal department or agency, a Member of the U.S. Congress, an officer or employee of the U.S. Congress, or an employee of a Member of the U.S. Congress in connection With the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification thereof.
- (2) If any funds other than Federally appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement. the undersigned shall complete and submit Standard Form- LLL, "Disclosure Form to Report Lobbying," in accordance with its instruction, as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96).
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including sub-contractors, sub-grants, and contracts under grants, loans. and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

THE BIDDER, _____ CERTIFIES OR AFFIRMS THE TRUTHFULNESS AND ACCURACY OF EACH STATEMENT OF ITS CERTIFICATION AND DISCLOSURE, IF ANY. IN ADDITION, THE PROPOSER OR BIDDER UNDERSTANDS AND AGREES THAT THE PROVISIONS OF 31 U.S.C. §§ 3801 ET SEQ. APPLY TO THIS CERTIFICATION AND DISCLOSURE, IF ANY.

(SIGNATURE OF BIDDER'S AUTHORIZED PERSON)

Name and Title of the BIDDER's Authorized Person

END OF LOBBYING CERTIFICATION SUBMITTED WITH BID

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION SUBMITTED WITH BID

BIDDER'S EQUAL EMPLOYEMENT OPPORTUNITY CERTIFICATION

The Bidder _____,

proposed subcontractor(s) _____, hereby certifies that he/she has _____, has not _____, participated in a previous contract or subcontract subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114, or 11246, and that, where required, he has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filling requirements.

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

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

Executed on _____ at _____
(DATE) (PLACE)

SIGNATURE

END OF BIDDER'S CERTIFICATION OF EQUAL EMPLOYMENT OPPORTUNITY SUBMITTED WITH
BID

THIS PAGE INTENTIONALLY LEFT BLANK

PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has _____, has not _____ been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

PUBLIC CONTRACT CODE 10232 STATEMENT

In conformance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

Note: The above Statement and Questionnaire are part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement and Questionnaire. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE

In conformance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No _____

If the answer is yes, explain the circumstances in the following space or use an attachment.

DEBARMENT AND SUSPENSION CERTIFICATION

TITLE 49, CODE OF FEDERAL REGULATIONS, PART 29

The bidder, under penalty of perjury, certifies that, except as noted below, he/she or any other person associated therewith in the capacity of owner, partner, director, officer, manager:

- is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any Federal agency;
- has not been suspended, debarred, voluntarily excluded or determined ineligible by any Federal agency within the past 3 years;
- does not have a proposed debarment pending; and
- has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Notes: Providing false information may result in criminal prosecution or administrative sanctions. The above certification is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Certification.

(SIGNATURE OF BIDDER'S AUTHORIZED PERSON)

Name and Title of the BIDDER's Authorized Person

END OF BIDDER'S CERTIFICATION FOR PUBLIC CONTRACT CODE 10285.1, 10232, 10162 AND DEBARMENT AND SUSPENSION SUBMITTED WITH BID

BID PROPOSAL CERTIFICATES

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 Pinole, 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)

BIDS PROPOSAL

PROPOSAL

To the City Council of the City of Pinole (City):

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

THIS PAGE INTENTIONALLY LEFT BLANK

6 BID SCHEDULE

BASE BID SCHEDULE						
#	Section	Description	Quantity	Unit	Unit Cost (\$/Unit)	Cost (\$)
1	01100	Mobilization (5% of Sewer items)	1	LS	\$	\$
2	SP-12	Traffic Control	1	LS	\$	\$
3	02200	Trench Sheet piling, Shoring and Bracing	1	LS	\$	\$
4	01350	Bypass Pumping	1	LS	\$	\$
5	02200	Overexcavation and Special Pipe Foundation (Revocable if not used)	10	CY	\$	\$
6	02200	Rock Excavation (Revocable if not used)	10	CY	\$	\$
7	15050	Remove and Replace Ex SS with New 24" SS by Open Trench	1,007	LF	\$	\$
8	15050	Construct New 24" SS by Open Trench	131	LF	\$	\$
9	02600	Lateral Reconnection	23	EA	\$	\$
10	02720	Remove and Replace Existing SSMH with New SSMH	8	EA	\$	\$
11	02050	Abandon Ex SS by Filling	140	LF	\$	\$
12	02050	Remove Existing SSMH	1	EA	\$	\$
13	02050	Investigation/Abandonment of Sewer Laterals Found to be Inactive (Revocable if not used)	4	EA	\$	\$
TOTAL BASE BID						\$

CREDIT TO CITY						
#	Section	Description	Quantity	Unit	Unit Cost (\$/Unit)	Cost (\$)
C1	15050	Credit to City for Supplying 24-inch HDPE Pipe (revocable if not needed)	1,138	LF	\$	\$
TOTAL CREDIT TO City						\$

ADDITIVE BID SCHEDULE*						
#	Section	Description	Quantity	Unit	Unit Cost (\$/Unit)	Cost (\$)
A1	02600	Remove and Replace 4" SS <u>Upper</u> Lateral in Landscaped Area by Open Trench with 4" SS PVC Pipe (revocable if not needed)	100	LF	\$	\$
A2	02600	Remove and Replace 4" SS <u>Upper</u> Lateral in Concrete or Other Hardscape Area by Open Trench with 4" SS PVC Pipe (revocable if not needed)	100	LF	\$	\$
A3	02600	Remove and Replace 4" SS <u>Lower</u> Lateral by Open Trench with 4" SS PVC Pipe (revocable if not needed)	100	LF	\$	\$
A4	02200	Pipeburst Existing 4" SS Lateral with New 4" SS HDPE SDR-17 Pipe (Revocable if not needed)	100	LF	\$	\$
A5	02701	Remove and Replace or Install New Property Line Cleanout (Revocable if not needed)	4	EA	\$	\$

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

* Procurement of the 24-inch HDPE may be handled by the City. The Contractor shall provide a credit to the City, if the pipe is furnished by the City.

** The City is currently coordinating with property owners within the project limits of work to find out if they have interest in having their lateral replaced as part of the project. The locations of laterals to be replaced will be provided to the contractor after the Preconstruction Meeting. Quantities are approximate and are dependent on participation of property owners

The basis of award for this project is the total cost of the Base Bid Schedule only. The City reserves the right to add or not add the additive bid item at the time of award.

Total Amount of Base Bid (written in words) is: _____
_____ Dollars and
_____ Cents.
In the event of discrepancy between words and figures, the words shall prevail.
\$ _____
Figures

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: _____

THIS PAGE INTENTIONALLY LEFT BLANK

QUESTIONNAIRE AND FINANCIAL ASSURANCE STATEMENT

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

The Bidder 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 Bidder, 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 five (5) years for the persons, firm or authority indicated and to whom reference is made:

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

LIST OF SUBCONTRACTORS

Pursuant to Section 4100 to 4113 of the Public Contract Code, and City instructions , each bidder shall complete and submit this form with his bid in accordance with the following instructions.

1. For each subcontract item to be performed by a subcontractor, the following shall be indicated herein: the name of the subcontractor, the portion of work to be performed, each subcontractor’s license number, and the location of the place of business.
2. Only one subcontractor shall be listed for each craft unless there is an alternate bid in which case a different subcontractor, when so designated, may be listed for the alternate work.
3. **All fields must be completed as specified or the bid proposal may be rejected as non-responsive.**

Name of Subcontractor	Portion of Contract (i.e. Electrical, Striping, etc.)	Subcontractor License Number	DIR Registration Number ¹	Dollar Amount of Work to Be Performed	Location of Business (City and State)

All general contractors and subcontractors must be registered with DIR in conformance with Labor Code Section 1725.5 and 1771.1. By requesting the DIR registration numbers of all subcontractors, bidders are put on notice that if they list a subcontractor without a DIR registration number at the time of bid opening, the County, in its sole discretion, may find the failure intentional and find the bid non-responsive. DIR registration number lookup is available online at <https://efiling.dir.ca.gov/PWCR/Search>

LIST OF MATERIAL SUPPLIERS AND MATERIAL GUARANTEE

LIST OF MATERIAL SUPPLIERS

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 General Conditions Section 1-6.03.

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

LIST OF MATERIAL SUPPLIERS

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 the specifications, the General Conditions or Special Provisions to determine their quality and fitness for the work.

THIS PAGE INTENTIONALLY LEFT BLANK

Accompanying this proposal is BIDDER'S BOND in amount equal to at least ten percent of the total of the bid.

The names of all persons interested in the foregoing proposal as principals are as follows:

IMPORTANT NOTICE: If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer, and manager thereof; if a copartnership, state true name of firm, also names of all individual copartners composing firm; if bidder or other interested person is an individual, state first and last names in full.

Licensed in conformance with an act providing for the registration of Contractors,

License No. _____ Classification(s) _____

ADDENDA

This Proposal is submitted with respect to the changes to the contract included in addenda number/s

(Fill in addenda numbers if addenda have been received and insert, in this Proposal, any Engineer's Estimate sheets that were received as part of the addenda.)

By my signature on this proposal I certify, under penalty of perjury under the laws of the State of California, that the foregoing questionnaire and statements of Public Contract Code Sections 10162, 10232 and 10285.1 are true and correct and that the bidder has complied with the requirements of Section 8103 of the Fair Employment and Housing Commission Regulations (Chapter 5, Title 2 of the California Administrative Code). By my signature on this proposal I further certify, under penalty of perjury under the laws of the State of California and the United States of America, that the Noncollusion Affidavit required by Title 23 United States Code, Section 112 and Public Contract Code Section 7106; and the Title 49 Code of Federal Regulations, Part 29 Debarment and Suspension Certification are true and correct.

Date:

Signature

Title of Bidder

Place of Business

Place of Residence

THIS PAGE INTENTIONALLY LEFT BLANK

BIDDER'S BOND

We, _____
_____ as Principal, and

as Surety are bound unto City of Pinole, Pinole, State of California, hereafter referred to as "Obligee", in the penalsum of ten percent (10%) of the total amount of the bid of the Principal submitted to the Obligee for the work described below, for the payment of which sum we bind ourselves, jointly and severally,
THE CONDITION OF THIS OBLIGATION IS SUCH, THAT:

WHEREAS, the Principal is submitted to the Obligee, for _____

(Copy here the exact description of work, including location as it appears on the proposal)

for which bids are to be opened at _____ on _____
(Insert place where bids will be opened) (Insert date of bid opening)

NOW, THEREFORE, if the Principal is awarded the contract and, within the time and manner required under the specifications, after the prescribed forms are presented to him for signature, enters into a written contract, in the prescribed form, in conformance with the bid, and files two bonds with the Obligee, one to guarantee faithful performance of the contract and the other to guarantee payment for labor and materials as provided by law, then this obligation shall be null andvoid; otherwise, it shall remain in full force.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurredby the Obligee in such suit, including a reasonable attorney's fee to be fixed by the court.

Dated: _____, 20____.

Principal

Surety
By _____
Attorney-in-fact

CERTIFICATE OF ACKNOWLEDGEMENT

State of California
City/County of _____ SS

On this _____ day of _____ in the year 20____ before me
_____, personally appeared _____,
Attorney-in-fact

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed tothis instrument as the attorney-in-fact of _____, and acknowledged to me that he (she) subscribed the name of the said company thereto as surety, and his (her) own name as attorney-in-fact.

(SEAL) _____
Notary Public

PAYMENT BOND
(Section 3247, Civil Code)

WHEREAS, the City of Pinole, hereafter referred to as "Obligee", has awarded to Contractor _____, hereafter designated as the "Principal", a contract for the work described as follows:

AND WHEREAS, said Principal is required to furnish a bond in connection with said contract, to secure the payment of claims of laborers, mechanics, materialmen and other persons as provided by law.

NOW, THEREFORE, we the undersigned Principal and Surety are bound unto the Obligee in the sum of

_____ dollars

(\$ _____), for which payment, we bind ourselves, jointly and severally.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if said Principal or its subcontractors shall fail to pay any of the persons named in Civil Code Section 3181, or amounts due under the Unemployment Insurance Code with respect to work or labor performed by such claimant, or any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board for the wages of employees of the Principal and his subcontractors pursuant to Section 18806 of the Revenue and Taxation Code, with respect to such work and labor, that the surety herein will pay for the same in an amount not exceeding the sum specified in this bond, otherwise the above obligation shall be void. In case suit is brought upon this bond, the surety will pay a reasonable attorney's fee to be fixed by the court. This bond shall inure to the benefit of any of the persons named in Civil Code Section 3181 as to give a right of action to such persons or their assigns in any suit brought upon this bond.

Dated: _____, 20____

Correspondence or claims relating to this bond should be sent to the surety at the following address:

Principal

Surety

By _____

Attorney-in-fact

NOTE: Signatures of those executing for the surety must be properly acknowledged.

CERTIFICATE OF ACKNOWLEDGEMENT

State of California
City/County of _____ SS

On this _____ day of _____ in the year 20____ before me

_____, personally appeared _____,

Attorney-in-fact

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to this instrument as the attorney-in-fact of _____, and acknowledged to me that he (she) subscribed the name of the said company thereto as surety, and his (her) own name as attorney-in-fact.

(SEAL)

Notary Public

PERFORMANCE BOND
(To Accompany Contract)

Bond No. _____

WHEREAS, the City of Pinole, has awarded to Contractor _____, hereafter designated as the "Contractor", a contract for the work described as follows:

AND WHEREAS, the Contractor is required to furnish a bond in connection with said contract, guaranteeing the faithful performance thereof:

NOW, THEREFORE, we the undersigned Contractor and Surety are held firmly bound to the City of Pinole in the sum of \$ _____ dollars (\$ _____), to be paid to said City of Pinole or its certain attorney, its successors and assigns: for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if the above bound Contractor, its 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 agreements in the foregoing contract 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 thereinspecified, and in all respects according to their intent and meaning, and shall indemnify and save harmless the City of Pinole its officers and agents, as therein stipulated, then this obligation shall become and be null and void; otherwise it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this _____ day of _____, 20__.

Correspondence or claims relating to this bond should be sent to the surety at the following address:

Contractor

Name of Surety

By _____

Attorney-in-fact

NOTE: Signatures of those executing for the surety must be properly acknowledged.

CERTIFICATE OF ACKNOWLEDGEMENT

State of California
City/County of _____ SS

On this _____ day of _____ in the year 20__ before me

_____, personally appeared _____,
Attorney-in-fact

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to this instrument as the attorney-in-fact of _____, and acknowledged to me that he (she) subscribed the name of the said company thereto as surety, and his (her) own name as attorney-in-fact.

(SEAL)

Notary Public

MAINTENANCE BOND

WHEREAS, the City of Pinole 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 Pinole 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 of Pinole 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

THIS PAGE INTENTIONALLY LEFT BLANK



II. GENERAL CONDITIONS

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS – GENERAL CONDITIONS

CITY OF PINOLE GENERAL CONDITIONS.....2

1 GENERAL CONDITIONS2

 1-1 DEFINITIONS2

 1-2 PRELIMINARY MATTERS5

 1-3 INTENT AND USE OF CONTRACT DOCUMENTS.....5

 1-4 SITE OF THE WORK.....7

 1-5 BONDS AND INSURANCE9

 1-6 CONTRACTOR’S RESPONSIBILITIES11

 1-7 OTHER WORK26

 1-8 CITY’S RESPONSIBILITIES.....27

 1-9 ENGINEER’S STATUS DURING CONSTRUCTION.....27

 1-10 CHANGES IN THE WORK29

 1-11 CHANGE OF CONTRACT PRICE.....30

 1-12 CHANGE OF CONTRACT TIMES.....33

 1-13 INSPECTIONS AND TESTS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE
 WORK.....34

 1-14 PAYMENTS TO CONTRACTOR AND COMPLETION37

 1-15 SUSPENSION OF WORK AND TERMINATION40

 1-16 GENERAL TERMS41

 1-17 CALIFORNIA STATE REQUIREMENTS.....42

CITY OF PINOLE GENERAL CONDITIONS

1 GENERAL CONDITIONS

1-1 DEFINITIONS

Whenever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated in this Section 1-1 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.

AGENCY or alternatively City— City of Pinole.

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 Council - The City of Pinole operates under the Council-Manager form of municipal government. The City Council is comprised of five members elected at large to four-year terms. The Mayor is rotated amongst the Council on a yearly basis. In addition to Councilmembers, the City Treasurer is also an elected position.

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, 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. Project Plans and drawings used in the documents interchangeably.

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 of the City of Pinole 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 Pinole 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 latest Caltrans Standard Specifications, Caltrans Standard Plans, Technical 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.

You/Your - Refers to the CONTRACTOR

1-2 PRELIMINARY MATTERS

1-2.01 DELIVERY OF BONDS AND INSURANCE CERTIFICATES

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.

1-2.02 COPIES OF DOCUMENTS

The City may furnish to the CONTRACTOR additional copies of the Contract Documents if requested for a fee based on cost of production.

1-2.03 COMMENCEMENT OF CONTRACT TIMES; NOTICE TO PROCEED

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

1-2.04 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 Section 1-3.03.

1-2.05 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.

1-3 INTENT AND USE OF CONTRACT DOCUMENTS

1-3.01 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 Section 1-1 of the General Conditions.

1-3.02 REFERENCE TO STANDARDS

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 specifications, standard plans; 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.

1-3.03 REVIEW OF CONTRACT DOCUMENTS

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 Section 1-6.13 until a Clarification, Field Order, or Change Order to the Contract Documents has been issued.

1-3.04 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:

- a. Change Orders/Addenda (most recent in time take precedence)
 - b. Agreement and Bond Forms
 - c. Special Provisions
 - d. Project Plans
 - e. Technical Specifications
 - f. General Conditions
 - g. Caltrans Standard Specifications 2022
 - h. Caltrans Standard Plans 2022
 - i. Federal clauses as referred or attached
 - j. Instructions to Bidders
 - k. Contractor's Bid (Bid Form)
 - l. Notice Inviting Bids
 - m. Permits from other agencies as may be required by law
- B. With reference to the Drawings the order of precedence is as follows:
- a. Figures govern over scaled dimensions
 - b. Detail drawings govern over general drawings
 - c. Addenda/Change Order drawings govern over any other drawings
 - d. Drawings govern over standard drawings

1-3.05 AMENDING CONTRACT DOCUMENTS

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 Section 1-10).

1-3.06 REUSE OF DOCUMENTS

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.

1-4 SITE OF THE WORK

1-4.01 AVAILABILITY OF LANDS

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.

1-4.02 REPORTS OF PHYSICAL CONDITIONS

A. **Subsurface Explorations:** Reference is made to any Contract Documents 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 Contract Documents for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except underground Utilities referred to in Section 1-4.03 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 Section 1-4.02 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.

1-4.03 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 Contract documents 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.

1-4.04 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:

a. 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 Sections 1-4.02, 4.03, and 4.05.

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 Section 1-10 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 Sections 1-11 and 1-12.

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.

1-4.05 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.

a. 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 Section 1-6.13) 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 Sections 1-11 and 1-12.

b. 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 Sections 1-11 and 1-12. City may have such deleted portion of the WORK performed by City's own forces or others in accordance with Section 1-7.

B. The provisions of Sections 1-4.02, 1-4.03, and 1-4.04 are not intended to apply to Asbestos, Petroleum, Hazardous Waste, or Radioactive Material uncovered or revealed at the Site.

1-4.06 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, 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.

1-5 BONDS AND INSURANCE

1-5.01 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 Contract Documents.
- 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 Section 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.

1-5.02 INSURANCE

1-5.02A General

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. CONTRACTOR shall be fully responsible for the acts and omissions of its subcontractors or other agents.

1-5.02B Minimum Scope of Insurance

- A. Coverage shall be at least as broad as:
- B. Insurance Services Office Commercial General Liability coverage occurrence form CG 0001 (most recent edition).
- C. Insurance Services Office form number CA 0001 covering Automobile Liability, code 1 (any auto).
- D. Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance.
- E. [Optional] Such other insurance coverages and limits as may be required by the City as follows:
_____.

1-5.02C Minimum Limits of Insurance

- A. CONTRACTOR shall maintain limits no less than:
- B. Commercial General Liability: \$2,000,000 per occurrence and \$4,000,000 aggregate, combined single limit coverage for risks associated with the work contemplated by this Agreement.
- C. Professional Liability: \$1,000,000 per occurrence or claim covering the errors and omissions of CONTRACTOR

1-5.02D Commercial General and Automobile Liability Insurance

CONTRACTOR, at its own cost and expense, shall maintain commercial general and automobile liability insurance for the term of this Agreement in an amount not less than TWO MILLION DOLLARS (\$2,000,000) per occurrence and FOUR MILLION DOLLARS (\$4,000,000) aggregate, combined single limit coverage for risks associated with the work contemplated by this Agreement.

Commercial general coverage shall be at least as broad as Insurance Services Office Commercial General Liability occurrence form CG 0001 (most recent edition) covering comprehensive General Liability on an "occurrence" basis. Automobile coverage shall be at least as broad as Insurance Services Office Automobile Liability form CA 0001 (most recent edition) covering any auto (Code 1), or if CONTRACTOR has no owned autos, hired (code 8) and non-owned autos (Code 9). No endorsement shall be attached limiting the coverage.

Each of the following shall be included in the insurance coverage or added as a certified endorsement to the policy:

- a. The Commercial General and Automobile Liability Insurance shall cover on an occurrence basis.
- b. City, its officers, officials, employees, agents, and volunteers shall be covered as additional insureds for liability arising out of work or operations on behalf of CONTRACTOR, including materials, parts, or equipment furnished in connection with such work or operations; or automobiles owned, leased, hired, or borrowed by the CONTRACTOR. Coverage can be provided in the form of an endorsement to the CONTRACTOR'S insurance at least as broad as CG 20 10 11 85, or both CG 20 10 10 01 and CG 20 37 10 01.
- c. For any claims related to this Agreement or the work hereunder, CONTRACTOR'S insurance covered 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 non-contributing.
- d. The policy shall cover inter-insured suits and include a "separation of Insureds" or "severability" clause which treats each insured separately.

e. CONTRACTOR agrees to give at least 30 days prior written notice to City before coverage is canceled or modified as to scope or amount.

1-5.02E Professional Liability Insurance

CONTRACTOR, at its own cost and expense, shall maintain for the period covered by this Agreement professional liability insurance for licensed professionals performing work pursuant to this Agreement in an amount not less than ONE MILLION DOLLARS (\$1,000,000) per occurrence or claim covering CONTRACTOR'S errors and omissions.

The following provisions shall apply if the professional liability coverage is written on a claims-made form:

a. The retroactive date of the policy must be shown and must be before the date of the Agreement.

b. Insurance must be maintained and evidence of insurance must be provided for at least five (5) years after completion of the Agreement or the work.

c. If coverage is canceled or not renewed and it is not replaced with another claims-made policy form with a retroactive date that precedes the date of this Agreement, CONTRACTOR must provide extended reporting coverage for a minimum of five (5) years after completion of work under this Agreement.

d. A copy of the claim reporting requirements must be submitted to the City prior to the commencement of any work under this Agreement.

1-5.02F Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and approved by the City. Insurance obtained by CONTRACTOR shall have a self-insured retention or deductible of no more than one hundred thousand dollars (\$100,000).

1-5.02G Other Insurance Provisions

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

A. 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.

B. 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.

C. 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.

D. 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.

1-5.02H Acceptability of Insurers

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

1-5.02I Verification of Coverage

CONTRACTOR shall submit the following to City prior to commencing services: 1) Certificate of Liability Insurance in the amounts specified in this Agreement; and 2) Additional Insured Endorsement as required for the General Commercial and Automobile Liability Policies.

1-5.02J Wasting Policies

No policy required herein shall include a “wasting” policy limit (i.e. limit that is eroded by the cost of defense).

1-5.02K Waiver of Subrogation

CONTRACTOR hereby agrees to waive subrogation which any insurer or contractor may require from CONTRACTOR by virtue of the payment of any loss. CONTRACTOR agrees to obtain any endorsements that may be necessary to effect this waiver of subrogation, but this provision applies regardless of whether or not the City has received a waiver of subrogation endorsement from the insurer.

1-5.02L Subcontractors

CONTRACTOR shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein, and CONTRACTOR shall ensure that City, its officers, officials, employees, agents, and volunteers are covered as additional insured on all coverages.

1-5.02M Excess Insurance

If CONTRACTOR maintains higher insurance limits than the minimums specified herein, City shall be entitled to coverage for the higher limits maintained by CONTRACTOR.

1-5.02N Remedies

In addition to any other remedies City may have if CONTRACTOR fails to provide or maintain any insurance policies or policy endorsements to the extent and within the time herein required, City may, at its sole option: 1) obtain such insurance and deduct and retain the amount of the premiums for such insurance from any sums due under the Agreement; 2) order CONTRACTOR to stop work under this Agreement and withhold any payment that becomes due to CONTRACTOR hereunder until CONTRACTOR demonstrates compliance with the requirements hereof; and/or 3) terminate this Agreement.

1-6 CONTRACTOR’S RESPONSIBILITIES

1-6.01 COMMUNICATIONS

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

1-6.02 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.

1-6.03 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 Section, 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 1-9.09 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 section; 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 section. 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.
- a. 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.
 - b. 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.

- c. 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.
 - d. 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.
 - e. 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.

1-6.04 SCHEDULE

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

1-6.05 SUBSTITUTES OR “OR EQUAL” ITEMS

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 1-6.03.I herein.

1-6.06 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS

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 Section 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 Special Provisions as part of all its subcontract and supply agreements.

1-6.07 PERMITS

Unless otherwise provided in these 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.

1-6.08 PATENT FEES AND ROYALTIES

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 Section 1-6.08 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 Section 1-6.17 of these General Conditions.

1-6.09 LAWS AND REGULATIONS

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 Section 1-6.16 of these General Conditions.

1-6.10 TAXES

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.

1-6.11 USE OF PREMISES

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, sub consultants, 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 Section 1-6.17 of these General Conditions.

1-6.12 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:
 - a. All persons at the Site and other persons and organizations who may be affected thereby;
 - b. All the WORK and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - c. 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 1-14.07 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:
- a. 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.
 - b. 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.
 - c. Evidence that the CONTRACTOR has become thoroughly familiar with the potential hazards of the work and applicable federal and state regulations.
 - d. Specific safety procedures and guidelines for conduct of the Work.
 - e. 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.
 - f. Contractor will follow City of Pinole, State of California and Center of Disease Control (CDC) specific COVID-19 safety procedures and guidelines for the entire duration of the CONTRACT.

1-6.13 EMERGENCIES

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.

1-6.14 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.
- F. 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.
- G. 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.
- H. Where the CONTRACTOR is required by these Specifications to make submittals, they shall be submitted to the ENGINEER with a letter of transmittal via electronic copies (pdf or other suitable format) to all parties needing to review. All required physical samples shall be delivered separately to the ENGINEER and will be retained by the ENGINEER. Unless specifically requested for a hardcopy by the ENGINEER, all submittals shall be submitted electronically.
- I. Within fifteen (15) 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:
 - a. Reviewed, No exceptions taken
 - b. Reviewed as noted
 - c. Revise and Resubmit or
 - d. Rejected.
- J. 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.

- K. 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.
- L. 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.
- M. CONTRACTOR may propose an electronic/online submittal system which the ENGINEER is familiar with. If the ENGINEER is agreeable to the electronic submittal system a process shall be agreed upon. The number days required for review by Engineer shall not change.
- N. 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.

1-6.15 CONTINUING THE WORK

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.

1-6.16 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:
 - a. 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;
 - b. 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:
 - a. Observations by ENGINEER;
 - b. Recommendation by ENGINEER or payment by City of any progress or final payment;
 - c. The issuance of a Certificate of Completion by the City;
 - d. Use or occupancy of the WORK or any part thereof by the City;
 - e. Any acceptance by City or any failure to do so;
 - f. Any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice or acceptability by ENGINEER pursuant to Paragraph 1-14.07B;
 - g. Any inspection, test, or approval by others; or
 - h. Any correction of Defective Work by City.

1-6.17 INDEMNIFICATION

- A. To the fullest extent permitted by law, the Contractor shall indemnify, defend with counsel acceptable to City, and hold harmless City, its officers, officials, employees, agents, and volunteers from and against any and all losses, claims, demands, damages, costs, expenses, attorney's fees, or liability of every nature arising out of or in any way connected with the performance or attempted performance of the provisions of this Contract, caused in whole or in part by any negligent or willful act or omission of the Contractor, its officers, employees, or agents, or anyone directly or indirectly acting on behalf of the Contractor, regardless of whether caused in part by a party indemnified hereunder. Nothing contained in the foregoing indemnity provisions shall be construed to require the Contractor to indemnify the indemnified party in contravention of Section 2782 of the Civil Code for the active or sole negligence or willful misconduct of that indemnified party.
- B. To the fullest extent permitted by law, the Contractor's duty to defend shall extend, without limitation, to any suit or action founded upon any losses, claims, demands, damages, costs, expenses, attorney's fees, or liability of every nature arising out of or in any way connected with the performance or attempted performance of the provisions hereof, or in any way arising out of or connected with this Contract.
- C. The defense and indemnity obligations expressly extend to and include any and all claims, demands, damages, costs, expenses, or liability occasioned as a result of damages to adjacent property caused by the conduct of the Work.
- D. The defense and indemnity obligations expressly extend to and include any and all claims, demands, damages, costs, expenses, or liability occasioned as a result of the violation by the Contractor, the Contractor's agents, employees, or independent contractors, Subcontractors or suppliers of any provisions of federal, State or local law, including applicable administrative regulations.
- E. The defense and indemnity obligations also expressly extend to and include any claims, demands, damages, costs, expenses, or liability occasioned by injury to or death of any person, or any property damage to property owned by any person while on or about the site or as a result of the Work, whether such persons are on or about the site by right or not, whenever the Work is alleged to have been a contributing cause in any degree whatsoever.
- F. In claims against any person or entity herein indemnified that are made by an employee of the Contractor or an employee of any of the Contractor's agents, independent contractors, Subcontractors or suppliers, a person indirectly employed by the Contractor or by any of the Contractor's agents, independent contractors, Subcontractors or suppliers, or anyone for whose acts the Contractor or any of the Contractor's agents, independent contractors, Subcontractors or suppliers may be liable, the defense and/or indemnification obligation herein shall not be limited by any limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or the Contractor's agents, independent contractors, Subcontractors or suppliers under workers' compensation acts, disability acts, or other employee benefit acts.
- G. The indemnification obligations herein shall not be limited by any assertion or finding that the person or entity indemnified is liable by reason of a non-delegable duty.
- H. The indemnities set forth herein shall not be limited by the insurance requirements set forth in the Contract Documents.
- I. The indemnification requirements herein set forth shall extend to claims occurring after this Contract is terminated as well as while it is in force.
- J. In the event the Contractor enters into any agreement with the owners of any adjacent property to enter upon or adjacent to such property for the purpose of performing this Contract, the Contractor shall fully indemnify, defend and save harmless such person, firm, or corporation, State or other governmental agency which owns or has any interest in the adjacent property. The form and content of the indemnification agreement shall be approved by City prior to commencement of any work on or about such property. The Contractor also shall indemnify City and other indemnities identified in this Section as provided in the Contract. These provisions shall be in addition to any other requirements of the owners of adjacent property.

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

1-6.18 CONTRACTOR'S DAILY REPORTS

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.

1-6.19 CONTRACT DOCUMENTS AND RECORD DRAWINGS

1. 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.
2. 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.
3. 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.
4. 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 or bond release will not be approved until the complete and correct Record Drawings are delivered to the ENGINEER.

1-6.20 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 Section are being met.

- A. During the progress of the WORK, the CONTRACTOR shall:
- a. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of material.
 - b. Provide adequate storage of all items awaiting removal from the jobsite, observing all requirements for fire protection and protection of the environment.
 - c. Remove any accumulation of scrap, debris, waste material, and other items not required for construction of this work.
 - d. 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.
 - e. 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:
 - a. Remove from the job site all plant, buildings, tools, surplus materials, equipment, forms, rubbish, scrap, debris, and waste
 - b. Clean all paved areas on the site. Completely remove all resultant debris.
 - c. 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.
 - d. 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.
 - e. Schedule final cleaning and improvement restoration to enable the City to accept a completely clean and restored project.

1-6.21 STORM WATER POLLUTION PREVENTION

1-6.21A General

- A. 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 this section 1-6.21. The CONTRACTOR shall include appropriate subcontract provisions to ensure that these requirements are met by all subcontractors.
- B. 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.
- C. 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.

1-6.21B Management of Nonhazardous Material and/or Waste

- A. 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.
- B. 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.
- C. 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.
- D. 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.

1-6.21C Management of Hazardous Material and/or Waste

- A. 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.
- B. 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.
- C. 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 1-6.21A above.

1-6.21D Vehicle/Equipment Cleaning, Maintenance, and Fueling

- A. 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.

- B. 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.
- C. 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.
- D. 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 1-6.21C above.

1-6.21E Dewatering Operations

- A. 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.
- B. 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.

1-6.21F Paving or Oiling Operations

- A. 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.
- B. The CONTRACTOR shall prevent saw-cut slurry from entering catch basins and storm drains by limiting the area over which the slurry may spread.
- C. The CONTRACTOR shall cover catch basins and manholes when paving or applying seal coat, tack coat, slurry seal, or fog seal.
- D. 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.

1-6.21G Concrete, Grout, and Mortar Waste Management

- A. 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.
- B. 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.

1-6.21H Paint Disposal and Clean-up

A. 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.

B. 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.

C. Waste Disposal - The CONTRACTOR shall dispose of waste thinner, solvent, and sludge from cleaning of equipment and tools as hazardous waste, as described in this Section 1-6.21H. The CONTRACTOR shall dispose of excess thinners, solvents, and oil- and water-based paint as hazardous waste.

1-6.21I 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.

1-7 OTHER WORK

1-7.01 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.

1-7.02 COORDINATION

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 Special Provisions.

1-8 CITY'S RESPONSIBILITIES

1-8.01 COMMUNICATIONS

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

1-8.02 PAYMENTS

The City will make payments to the CONTRACTOR as provided in Section 1-14.

1-8.03 LANDS, EASEMENTS, AND SURVEYS

The City's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Sections 1-4.01 and 1-4.06.

1-8.04 REPORTS AND DRAWINGS

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 Section 1-4.02.

1-8.05 CHANGE ORDERS

The City will execute Change Orders as indicated in Section 1-10.

1-8.06 INSPECTIONS AND TESTS

The City's responsibility for inspections and tests is set forth in Section 1-13.03.

1-8.07 SUSPENSION OF WORK

The City's right to stop work or suspend work is set forth in Sections 1-13.04 and 1-15.01.

1-8.08 TERMINATION OF AGREEMENT

The City's right to terminate services of the CONTRACTOR is set forth in Sections 1-15.02 and 1-15.03.

1-8.09 LIMITATION ON CITY'S RESPONSIBILITIES

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.

1-8.10 UNDISCLOSED HAZARDOUS ENVIRONMENTAL CONDITIONS

City's responsibility in respect to an undisclosed hazardous environmental condition is set forth in Section 1-4.05.

1-9 ENGINEER'S STATUS DURING CONSTRUCTION

1-9.01 CITY'S REPRESENTATIVE

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.

1-9.02 OBSERVATIONS ON THE SITE

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.

1-9.03 PROJECT REPRESENTATION

The ENGINEER may furnish a Resident Project Representative to assist in observing the performance of the WORK.

1-9.04 CLARIFICATIONS

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.

1-9.05 AUTHORIZED VARIATIONS IN WORK

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 Sections 1-11 or 1-12.

1-9.06 REJECTING DEFECTIVE WORK

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 Section 1-13.

1-9.07 CONTRACTOR SUBMITTALS, CHANGE ORDERS, AND PAYMENTS

- A. In accordance with the procedures set forth in the General Conditions and Special provisions, the ENGINEER will review all CONTRACTOR submittals.
- B. The ENGINEER's responsibilities for Change Orders are set forth in Sections 1-10, 1-11, and 1-12.
- C. The ENGINEER's responsibilities for Applications for payment are set forth in Section 1-14.

1-9.08 DECISIONS ON DISPUTES

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 Sections 1-10, 1-11, and 1-12.

1-9.09 LIMITATIONS ON ENGINEER'S RESPONSIBILITIES

- A. Neither the ENGINEER's authority to act under this Section 1-9 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 Section 1-9.09C.
- 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.

1-10 CHANGES IN THE WORK

1-10.01 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 Sections 1-13.03.F and G.
- C. The City and the CONTRACTOR shall execute appropriate Change Orders covering:
 - a. Changes in the WORK which are ordered by the City pursuant to Section 1-10.01A.;
 - b. Changes required because of acceptance of Defective Work under Section 1-13.06; and
 - c. Changes in the Contract Price or Contract Times which are agreed to by the parties under Sections 1-11 and/or 1-12, 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 Sections 1-11 and 1-12.

1-10.02 ALLOWABLE QUANTITY VARIATIONS

- A. In the event of an increase or decrease in the quantity of any bid item under a unit price contract, the total amount of work actually done or materials or equipment furnished will be paid for according to the unit price established for such work under the Contract Documents, wherever such unit price has been established; provided, that an adjustment in the Contract Price may be made for changes which result in an increase or decrease in excess of 25 percent of the estimated quantity of any unit price bid item of the WORK.
- B. In the event a part of the WORK is to be entirely eliminated and no lump sum or unit price is named in the Contract Documents to cover such eliminated work, the price of the eliminated work shall be agreed upon by the City and the CONTRACTOR by Change Order.

1-11 CHANGE OF CONTRACT PRICE

1-11.01 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:
 - a. 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.
 - b. By mutual acceptance of a lump sum, which may include an allowance for overhead and profit not necessarily in accordance with Section 1-11.04; or
 - c. On the basis of the cost of work (determined as provided in Section 1-11.03) plus the CONTRACTOR's overhead and profit (determined as provided in Section 1-11.04).
- 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 C.

1-11.02 COSTS RELATING TO WEATHER

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.

1-11.03 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 Section 1-11.05.

- 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 Section 1-11.04.
- 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:
- a. All trade discounts and rebaters shall accrue to the City, and the CONTRACTOR shall make provisions so that they may be obtained;
 - b. 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;
 - c. 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
 - d. 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:
- a. 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;
 - b. 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;
 - c. 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;
 - d. 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:

- a. 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;
 - b. 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 c, d, and e, following;
 - c. Payment for the equipment will be made in accordance with the provisions in Section 1-11.03D, herein;
 - d. 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 Section 1-11.03B, 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
 - e. 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 Section 1-11.04, 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:
- a. 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;
 - b. 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
 - c. All invoices for special services will be adjusted by deducting all trade discounts. In lieu of the allowances for overhead and profit specified in Section 1-11.04, 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.

1-11.04 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 Section 1-11.03. 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 Section, 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.

1-11.05 EXCLUDED COSTS

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

- A. 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;
- B. 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;
- C. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site;
- D. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the WORK and charges against CONTRACTOR for delinquent payments;
- E. 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 Section 1-11.04 above);
- F. 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
- G. Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in Section 1-11.04.

1-11.06 CONTRACTOR'S EXTRA WORK REPORT

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 Sections 1-11.03 through 1-11.05 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.

1-12 CHANGE OF CONTRACT TIMES

1-12.01 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 1-12.01 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 1-12.01.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 Section 1-7; 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:
 - a. Delays caused by or within the control of CONTRACTOR; or
 - b. 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 Section 1-7.

1-12.02 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 **10 days** for this project.
- 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.

1-13 INSPECTIONS AND TESTS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

1-13.01 NOTICE OF DEFECTIVE WORK

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 Section 1-13. Defective Work may be rejected even if approved by prior inspection.

1-13.02 ACCESS TO WORK

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.

1-13.03 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:
 - a. For inspection, tests, or approvals covered by Paragraphs 11-13.03C and 11-13.03D below;
 - b. That costs incurred in connection with tests or inspections conducted pursuant to Paragraph 1-13.03G. shall be paid as provided in said Paragraph 1-13.03G; and
 - c. 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, 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. 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 Sections 1-11 and 1-12.

- H. 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.

1-13.04 City MAY STOP THE WORK

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.

1-13.05 CORRECTION OR REMOVAL OF DEFECTIVE WORK

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.

1-13.06 ACCEPTANCE OF DEFECTIVE WORK

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.

1-13.07 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 1-13.05A., 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 Section 1-11. 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.

1-13.08 CORRECTION PERIOD

- A. The correction period for Defective Work shall be the longer of:
 - a. One year after the date of final acceptance;
 - b. Such time as may be prescribed by Laws and Regulations;
 - c. Such time as specified by the terms of any applicable special guarantee required by the Contract Documents; or
 - d. Such time as specified by any specific provision of the Contract Documents.
- B. If, during the correction period as defined in Paragraph 1-13.08A above, any work is found to be Defective Work, the City shall have the same remedies as set forth in Sections 1-13.05, 1-13.06, and 1-13.07 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.

1-14 PAYMENTS TO CONTRACTOR AND COMPLETION

1-14.01 SCHEDULE OF VALUES (LUMP SUM PRICE BREAKDOWN)

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

1-14.02 UNIT PRICE BID SCHEDULE

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

1-14.03 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 these General Conditions and the total amount of all previous payments made to the CONTRACTOR.
- D. At the discretion of the ENGINEER, if requested by the Contractor a payment for materials stored at the Site may be considered. The 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. In no case payment for the materials stored at site will be made for an amount more than 70% of the bid item or agreed schedule of values the specific item, where the material is supposed to be incorporated.

- E. A **Five percent (5%)** 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:
 - a. 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.
 - b. The balance of the amount bid for mobilization/demobilization shall be paid upon completion of all WORK on the project.

1-14.04 CONTRACTOR'S WARRANTY OF TITLE

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.

1-14.05 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 1-14.05B.) 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:
 - a. The work is Defective Work or the completed WORK has been damaged requiring correction or replacement.
 - b. The Contract Price has been reduced by written amendment or Change Order.
 - c. The City has been required to correct Defective Work or complete WORK in accordance with Section 1-13.07.
 - d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in Sections 1-15.01 through 15.04 inclusive.
 - e. Third party claims filed or reasonable evidence indicating probable filing of such claims; or
 - f. Failure of the Contractor to make payments properly to subcontractors or for labor, materials, or equipment; or
 - g. Reasonable evidence that the work cannot be completed for the unpaid balance of the contract sum; or
 - h. Failure of the Contractor to submit an acceptable construction schedule or failure to update the schedule; or
 - i. Damage to the City or another contractor; or
 - j. Reasonable evidence that the work will not be completed within the time provided for in the Contract; or 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
 - k. Persistent failure to carry out the work in accordance with the Contract; or

- l. Failure to deliver copies of certified payrolls, as specified in Section 1-17.11, General Conditions.
 - m. 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:
- a. Claims have been made against City on account of CONTRACTOR's performance or furnishing of the WORK.
 - b. Liens have been filed in connection with the WORK, except where CONTRACTOR has delivered a specific Bond satisfactory to City to secure the satisfaction and discharge of such Liens.
 - c. There are other items entitling City to set-off against the amount recommended, or
 - d. City has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.05B. through 14.05C and Sections 15.01 through 15.04 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.

1-14.06 COMPLETION

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 Agency approval and recordation the Notice of Completion signed by the ENGINEER and CONTRACTOR, which shall fix the date of completion.

1-14.07 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.

1-14.08 FINAL APPLICATION FOR PAYMENT

After the CONTRACTOR has completed all of the remaining work items referred to in Sections 1-14.06 and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents (as provided in the General Conditions), 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.

1-14.09 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:
 - a. Liquidated damages, as applicable;
 - b. Amounts withheld by City under Paragraph 1-14.05B. and C. which have not been released; and
 - c. In accordance with Section 1-17.06, 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.

1-15 SUSPENSION OF WORK AND TERMINATION

1-15.01 SUSPENSION OF WORK BY City

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 Sections 1-11 and 1-12.

1-15.02 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:
 - a. Declare bankruptcy, become insolvent, or assign its assets for the benefit of its creditors;
 - b. Disregard or violate the Laws or Regulations of any public body having jurisdiction;
 - c. Fail to provide materials or workmanship meeting the requirements of the Contract Documents;
 - d. Disregard or violate provisions of the Contract Documents or ENGINEER's instructions;
 - e. Fail to prosecute the WORK according to the approved progress schedule;
 - f. Fail to provide a qualified superintendent, competent workmen, or materials or equipment meeting the requirements of the Contract Documents;
 - g. Disregard the authority of the ENGINEER; or
 - h. 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 1-15.02A., 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.

1-15.03 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):
 - a. 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;
 - b. 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;
 - c. For all reasonable claims, costs, losses, and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 - d. For reasonable expenses directly attributable to termination.
- B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

1-15.04 TERMINATION OF AGREEMENT BY CONTRACTOR

- A. The CONTRACTOR may terminate the Agreement upon 14 days written notice to the ENGINEER whenever:
 - a. The WORK has been suspended under the provisions of Section 1-15.01, 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
 - b. 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 Section 1-15.03, herein, and as determined in accordance with the requirements of said paragraph.

1-16 GENERAL TERMS

1-16.01 GIVING NOTICE

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.

1-16.02 TITLE TO MATERIALS FOUND ON THE WORK

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.

1-16.03 RIGHT TO AUDIT

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.

1-16.04 SURVIVAL OF OBLIGATIONS

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.

1-16.05 CONTROLLING LAW

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

1-16.06 SEVERABILITY

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.

1-16.07 WAIVER

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.

1-17 CALIFORNIA STATE REQUIREMENTS

1-17.01 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.

1-17.02 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.

1-17.03 APPRENTICES ON PUBLIC WORKS

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.

1-17.04 WORKING HOURS

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.

1-17.05 CONTRACTOR NOT RESPONSIBLE FOR DAMAGE RESULTING FROM CERTAIN ACTS OF GOD

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.

1-17.06 NOTICE OF COMPLETION

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 of Pinole’s City Council, the ENGINEER will file, in the County Recorder’s office, a Notice of Completion of the WORK.

1-17.07 UNPAID CLAIMS

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.

1-17.08 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.

1-17.09 PUBLIC WORKS CONTRACTS; ASSIGNMENT TO AWARDING BODY

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.

1-17.10 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:
 - a. The information contained in the payroll record is true and correct.
 - b. 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:
 - a. 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://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html>.
 - b. 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.

- c. 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.

1-17.11 CULTURAL RESOURCES

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 Conditions.

1-17.12 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.

1-17.13 CONCRETE FORMS, FALSEWORK, AND SHORING

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.

1-17.14 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. 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.
- C. 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.
- D. 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.

1-17.15 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:
 - a. The person is particularly exempted from this chapter.
 - b. 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.

1-17.16 DIGGING TRENCHES OR EXCAVATIONS; NOTICE ON DISCOVERY OF HAZARDOUS WASTE OR OTHER UNUSUAL CONDITIONS; INVESTIGATIONS; CHANGE ORDERS; EFFECT ON CONTRACT

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

- A. 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.

1-17.17 RETENTION PROCEEDS; WITHHOLDING; DISBURSEMENT

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:

- A. 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 Section 1-17.17.
- B. 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 of Pinole's 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.
- C. Subject to Section 1-17.17, 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.
- D. 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.
- E. 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.
- F. Any attempted waiver of the provisions of this section shall be void as against the public policy of this state.

1-17.18 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:
 - a. 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.

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

1-17.19 PREFERENCE FOR MATERIAL

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.

1-17.20 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:
 - a. A time extension;
 - b. Payment of money or damages arising from work done by or on behalf of, the CONTRACTOR pursuant to this CONTRACT and payment of which is not otherwise expressly provided for or the CONTRACTOR is not otherwise entitled to; or
 - c. An amount the payment of which is disputed by the ENGINEER.
- B. For any claim set out under Paragraph A above, the following requirements apply:
 - a. 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.

- b. 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.

- c. 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.

- d. 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.
- e. 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:

- a. Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual

stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

- b. 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.

- c. 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.
- d. 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.



III. SPECIAL PROVISIONS

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS – SPECIAL PROVISIONS

SP-1	DESCRIPTION OF WORK	3
SP-2	ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS	3
SP-3	COOPERATION	3
SP-4	OBSTRUCTIONS	3
SP-5	ORDER OF WORK	4
SP-6	DISADVANTAGED BUSINESS ENTERPRISES (DBE)	4
SP-7	FEDERAL LOBBYING RESTRICTIONS	4
SP-8	PROJECT AND CONSTRUCTION AREA SIGNS	5
SP-9	SANITATION FACILITIES	5
SP-10	CONSTRUCTION STAKING	5
SP-11	NOISE AND VIBRATION	6
SP-12	MAINTAINING TRAFFIC	6
SP-13	REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES	8
SP-14	DISPOSAL OF MATERIAL	8
SP-15	QUALITY CONTROL AND QUALITY ASSURANCE	9
SP-16	SUBMITTALS AND REQUEST FOR INTERPRETATION (RFI)	14
SP-17	WATERING	17
SP-18	PROGRESS SCHEDULE	17
SP-19	SUPERINTENDENCE	17
SP-20	CONDUCT	18
SP-21	SAFETY REQUIREMENT	18
SP-22	CLEANLINESS OF STREET	18
SP-23	PROJECT APPEARANCE	19
SP-24	RESPONSIBILITY FOR DAMAGE	19
SP-25	GUARANTEE OF WORK	19
SP-26	NOTICE TO PROCEED, BEGINNING OF WORK, CONTRACT TIME, TIME OF COMPLETION, AND LIQUIDATED DAMAGES	19
SP-27	HOURS OF WORK	20
SP-28	RECORD ("AS-BUILT") DRAWINGS	21
SP-29	NOTICE OF POTENTIAL CLAIM	21
SP-30	PAYMENT FOR MATERIALS ON HAND	22
SP-31	ACCESS TO DRIVEWAYS	22
SP-32	ARCHAEOLOGICAL MONITORING	22
SP-33	STORM WATER MANAGEMENT, AND SEDIMENT AND EROSION CONTROL	22
SP-34	ITEM INCREASES AND DECREASES -	24
SP-35	EXISTING WATER VALVES, MONUMENTS AND MANHOLES	25

SP-36 WAGE RATES25
SP-37 INSTRUCTIONS TO BIDDERS25

SP-1 DESCRIPTION OF WORK

The work to be done consists, in general, of installing new sanitary sewer main by open-trench, reconnection of laterals, sawcutting, excavation, backfill, asphalt concrete restoration, manhole rehabilitation and all other work specified in the contract documents and as shown on the plans.

SP-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 stated in the General Conditions.

SP-3 COOPERATION

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

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

SP-4 OBSTRUCTIONS

Attention is directed to Sections 5-1.36D, "Nonhighway 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.

SP-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.

SP-6 DISADVANTAGED BUSINESS ENTERPRISES (DBE)

There is no DBE goal for this work.

SP-7 FEDERAL LOBBYING RESTRICTIONS

Section 1352, Title 31, United States Code prohibits Federal funds from being expended by the recipient or any lower tier sub recipient of a Federal-aid contract to pay for any person for influencing or attempting to influence a Federal agency or Congress in connection with the awarding of any Federal-aid contract, the making of any Federal grant or loan, or the entering into of any cooperative agreement.

If any funds other than Federal funds have been paid for the same purposes in connection with this Federal-aid contract, the recipient must submit an executed certification and, if required, submit a completed disclosure form as part of the bid documents. A certification for Federal-aid contracts regarding payment of funds to lobby Congress or a Federal agency is included in the Proposal. Standard Form - LLL, "Disclosure of Lobbying Activities," with instructions for completion of the Standard Form is also included in the Proposal. Signing the Proposal will constitute signature of the Certification.

The above referenced certification and disclosure of lobbying activities must be included in each subcontract and any lower-tier contracts exceeding \$100,000. All disclosure forms, but not certifications, must be forwarded from tier to tier until received by the Engineer.

Contractor, the subcontractors, and any lower-tier contractors must file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by the Contractor, the subcontractors, and any lower-tier contractors. An event that materially affects the accuracy of the information reported includes:

- (1) A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or
- (2) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(3) A change in the officer(s), employees(s), or Member(s) contacted to influence or attempt to influence a covered Federal Action.

SP-8 PROJECT AND CONSTRUCTION AREA SIGNS

Not required.

SP-9 SANITATION FACILITIES

The contractor must conform to the requirements of Section 13.16.070 of the Pinole Municipal Code, requiring the maintenance of not less than one chemical toilet, approved by the Health Officer, on the premises, for each twenty (20) employees or fractional part thereof working at a construction job site, unless specifically exempt from this requirement by the Engineer. Alternate sanitary facilities if suitably located and adequately available may be substituted for the facilities required by Section 13.16.070, subject to approval of the Engineer. The job site location(s) of the chemical toilet must be approved by the Engineer.

MEASUREMENT AND PAYMENT –All costs incurred for providing, maintaining and removal of sanitation facilities shall be included in the various bid items and will be full compensation for providing all labor, materials, tools, equipment and incidentals and for doing all the work involved in this section, complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, as directed by the Engineer, and no additional compensation will be allowed therefore.

SP-10 CONSTRUCTION STAKING

Section 5-1.26, "Construction Surveys," of the Standard Specifications must be deleted in its entirety and replaced with the following:

This work will consist of furnishing and setting construction and marks to establish 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.

CONTRACTOR must provide all construction surveying, staking and layout necessary to establish the lines and grades required for the completion of the work shown on the plans and as specified in the Contract documents. The construction survey crew must follow the California Department of Transportation's Surveys Manual (Surveys Manual) at all times and be under the direction and "responsible charge" of a Professional Land Surveyor registered in the State of California or a Registered Civil Engineer authorized to practice land surveying in the State of California. Construction stakes must be removed from the site of the work when no longer needed.

Survey data for the construction control surveys, horizontal and vertical, is shown on the plans. Electronic copies of design files may not be available for Contractor's use. The Surveyor must set stakes or marks in conformance with the requirements in Chapter 12, "Construction Surveys," of the Surveys Manual. Before starting any survey work, Contractor must submit in writing for approval by the Engineer the proposed procedures, methods, equipment and typical stake markings to be used.

All computations necessary to establish the exact positions of the work from actual control points must be made by the CONTRACTOR. All computations, survey notes, and other records necessary to accomplish the work must be neat, legible, and accurate. Copies of such computations, notes, and other records must be furnished to the Engineer prior to beginning work.

The Surveyor will be required to provide daily survey notes and cut sheets to the Engineer during the progress of this construction project and all construction staking and surveying must be approved by the Engineer prior to the start of construction.

Construction stakes must be removed from the site of the work when no longer needed. Upon completion of construction staking and prior to acceptance of the contract, all computations, survey notes, and other data used to accomplish the work must be furnished to the Engineer.

MEASUREMENT AND PAYMENT – If no separate bid item is provided for Construction staking/Surveying all costs incurred for construction staking shall be included in various bid items and will be full compensation for providing all labor, materials, tools, equipment and incidentals and for doing all the work involved in furnishing and setting construction and marks to establish and lines and grades, complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, as directed by the Engineer, and no additional compensation will be allowed therefore.

SP-11 NOISE AND VIBRATION

Noise and vibration must conform to Section 14-8, "Noise and Vibration," of the Standard Specifications and these Special Provisions.

The noise level from Contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., must not exceed 86 dB at a distance of fifty (50) feet. This requirement will not relieve Contractor from his responsibility for complying with local ordinances regulating noise level.

The noise level requirement must apply to the equipment on the job or related to the job, including but not limited to trucks, transit mixers or transient equipment that may or may not be owned by you. The use of loud sound signals must be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

MEASUREMENT AND PAYMENT – If no separate bid item is provided for, all costs incurred for shall be included in the various bid items and will be the full compensation for providing all labor, materials, tools, equipment and incidentals and for doing all the work involved in this section, complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, as directed by the Engineer, and no additional compensation will be allowed therefore.

SP-12 MAINTAINING TRAFFIC

Attention is directed to Sections 7-1.03, "Public Convenience", 7-1.04, "Public Safety", of the Standard Specifications.

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

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

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

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

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

The CONTRACTOR shall notify the City of 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.

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

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

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

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

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. A Traffic Control Plan or proposal shall be submitted for review per Caltrans and City specifications/ permit requirements. No work shall commence on Public / County / State right of way until a traffic control plan is approved and implemented.

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

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

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

- A. Show location and limits of the work zone for each phase or specific operation of construction if requiring different traffic control.
- B. Give dimensions of lanes affected by traffic control that will be open to traffic.
- C. Indicate signing with MUTCD designation, cone placement (including spacing), changeable message signs, flashing arrow boards, pavement markings, and

- other methods of delineation and reference to appropriate standards and sign designations.
- D. Dimension location of signs and cone tapers.
 - E. Location of any and all flagmen, if applicable.
 - F. Identify side streets and driveways affected by construction and show how they will be handled.
 - G. Show how pedestrian and bicycle traffic will be handled through the construction site during all hours including edge grinding operation.
 - H. Show locations of night time lighting if applicable.
 - I. Modification to Traffic Signal operations in the vicinity of the project. Contractor shall be responsible for making arrangements with the City's Traffic Signal Technician at least 48 hours in advance before starting any work in or nearby a signalized intersection if any signal operations need to be modified.
 - J. Separate Traffic Control Plans shall be prepared for each phase of a construction project and shall be submitted for City's review and approval.

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 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.

MEASUREMENT AND PAYMENT – All costs involved for completing all work described in this section shall be considered to be included in the contract bid price for **TRAFFIC CONTROL** and no additional compensation shall be allowed therefore.

SP-13 REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES

When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and you encounter materials which you reasonably believe to be asbestos or a hazardous substance as defined in Section 25914.1 and 25914.2 of the Health and Safety Code, and the asbestos or hazardous substance has not been rendered harmless, you may continue work in unaffected areas reasonably believed to be safe. You must immediately cease work in the affected area and report the condition to the Engineer in writing.

In conformance with Section 25914.1 and 25914.2 of the Health and Safety Code, removal of asbestos or hazardous substances including exploratory work to identify and determine the extent of the asbestos or hazardous substance will be performed by separate contract, unless disclosed in the bid or contract documents.

If delay of work in the area delays the current controlling operation, you must submit an RFI to request a delay-related time or payment adjustment. Attention is directed to Section 8 1.07, "Delays," of the Standard Specifications.

SP-14 DISPOSAL OF MATERIAL

Attention is directed to Section 5-1.20B(4), "Contractor-Property Owner Agreement," of the Standard Specifications and these Special Provisions.

CONTRACTOR must make arrangements for disposing of materials outside the street right-of-way, and pay all costs involved. Disposable material must not be stockpiled in the street beyond the normal working hours.

Prior to any disposal of material, you must obtain written permission from the owner of the proposed disposal site. CONTRACTOR must submit the property owner's written permission to the Engineer and obtain the Engineer's written approval before moving the material offsite.

MEASUREMENT AND PAYMENT – If no separate bid item is provided, all costs incurred shall be included in various bid items and will be the full compensation for providing all labor, materials, tools, equipment and incidentals and for doing all the work involved in this section, complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, as directed by the Engineer, and no additional compensation will be allowed therefore.

SP-15 QUALITY CONTROL AND QUALITY ASSURANCE

Attention is directed to Sections 6, "Control of Materials" and 19-5, "Compaction," of the Standard Specifications and these Special Provisions.

This Section includes administrative and procedural requirements for quality assurance and quality control. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, City, City Representative, or authorities having jurisdiction are not limited by provisions of this Section.
4. Costs for re-testing and re-inspection, including special inspections and testing, regardless of the party responsible for the original testing and inspection, shall be the responsibility of the Contractor.

DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect, City Representative, or City Inspector.
- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.
- D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.
- E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

- F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - a. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to City Representative or City Inspector for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to City Representative or City Inspector for a decision before proceeding.

SUBMITTALS

- A. Qualification Data: For testing agencies specified in 1.6 "Quality Assurance" below to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Reports: Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and re-inspecting.

Permits, Licenses, and Certificates: For City's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee

payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production to produce required units.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production to produce required units.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - a. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
 - a. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - b. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - a. Build mockups in location and of size indicated or, if not indicated, as directed by City Representative.
 - b. Notify City Representative and City Inspector seven days in advance of dates and times when mockups will be constructed.
 - c. Demonstrate the proposed range of aesthetic effects and workmanship.
 - d. Obtain City Representative and City Inspector's approval of mockups before starting work, fabrication, or construction. Allow seven days for initial review and each re-review of each mockup.
 - e. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - f. Demolish and remove mockups when directed, unless otherwise indicated.

QUALITY CONTROL

- A. City Responsibilities: Where quality-control services are indicated as City's responsibility, City will engage a qualified testing agency to perform these services.

1. City will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Tests and inspections not explicitly assigned to City are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services. Contractor shall not employ same entity engaged by City, unless agreed to in writing by City.
 2. Notify testing agencies at least 48 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
 - a. Contractor shall be responsible for the cost of testing and inspections scheduled outside of normal business hours.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 1 Section "Submittal Procedures."
- D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents. Costs for retesting and re-inspection shall be the responsibility of the Contractor.
- E. Testing Agency Responsibilities: Cooperate with City Representative, City Inspector, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 1. Notify City Representative, City Inspector, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and City in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and - control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting. Schedule times for tests, inspections, obtaining samples, and similar activities.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality control services required by the Contract Documents. Submit schedule within 30 days of date established for the Notice to Proceed.
- I. Distribution: Distribute schedule to City, City Representative, City Inspector, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

SPECIAL TESTS AND INSPECTIONS

Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying City Representative, City Inspector, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to City Inspector, through City Representative, with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to City Representative.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for City Representative and City Inspector's reference during normal working hours.

REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
 2. Comply with the Contract Document requirements for Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

MEASUREMENT AND PAYMENT – If no separate bid item is provided all costs incurred shall be included in various bid items and will be full compensation for providing all labor, materials, tools, equipment and incidentals and for doing all the work involved in this section, complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, as directed by the Engineer, and no additional compensation will be allowed therefore.

SP-16 SUBMITTALS AND REQUEST FOR INTERPRETATION (RFI)

Submit samples, drawings, and data for the Engineer's approval which will demonstrate fully that the construction, and the materials and equipment to be furnished will comply with the provisions and intent of this specification.

Submit all samples, drawings and data, unless specified otherwise, in the quantity required for return to you, plus three, which the Engineer will retain. Label each sample, naming the project, the source of the material, and the proposed location of use on the project.

Restrict each submittal to only one Specification Section or portion thereof. Unless otherwise specifically permitted by the Engineer, make all submittals in groups containing all associated items for complete systems. The Engineer may reject partial submittals as not complying with the provisions of the contract documents.

Where the specifications indicate that you must follow manufacturer's instructions for installation of materials or equipment, those instructions must be submitted to the Agency prior to the start of work whether or not instructions are listed specifically as a submittal. When referenced, the manufacturers printed installation instructions will have the same effect as if printed in the contract documents.

Make all shop drawings accurately to a scale sufficiently large to show all pertinent features of the item and its method of connection to the work. Make all shop drawing prints in blue or black line on white background. Reproductions of Agency drawings are not acceptable.

You must not use red color marks on submittals. Duplicate all marks on all copies submitted and ensure marks are photocopy reproducible. Include legible scale details, sizes, dimensions, performance characteristics, capacities, test data, anchoring details, installation instructions, storage and handling instructions, color charts, layout drawings, parts catalogs, rough-in diagrams, wiring diagrams, controls, weights, and other pertinent data. Provide, at a minimum, the detail provided in the Contract Documents.

Prior to submittal for Engineer's review, use all means necessary to fully coordinate all materials, including the following procedures:

1. Determine and verify all field dimensions and conditions, materials, catalog numbers, and similar data.
2. Coordinate as required with all trades and with all public agencies involved.
3. Secure all necessary approvals from public agencies and others and signify by stamp, or other means, that they have been secured.

You must make all submittals far enough in advance of scheduled dates of installation to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.

Engineer prefers use of an online system for submittal submission, review and approval process. Minimum submittal review period is 15 working days. Submittals requiring coordination with multiple departments will require significantly more review time. Contractor must discuss with the Engineer and submit long lead items well in advance for getting approval. Re-submittal will start the review period time requirement as stated above.

At least one copy of each submittal will be returned to you marked "Reviewed", "Reviewed as Noted" or "No exceptions taken", "Revise and Resubmit", or "Rejected." Submittals marked "Reviewed as Noted" or "No exceptions taken" need not be resubmitted, but the notes must be followed. If a submittal is rejected, it will be marked to indicate what is unsatisfactory. Resubmit revised drawings or data as indicated, in number of copies specified above.

Review of each submittal by the Engineer will be general only and must not be construed as:

1. Permitting any departure from the contract requirements.

2. Relieving you of the responsibility for any errors and omissions in details, dimensions, or of other nature that may exist.
3. Approving departures from additional details or instructions previously furnished by the Engineer.
4. Relieving you from verifying all field conditions and dimensions.

Any submittals which are returned to you for resubmittal due to incompleteness or noncompliance more than once will cause additional review time and expense for the Agency. You must reimburse the Agency for all costs associated with the third and subsequent review of any submittals. The Agency reserves the right to deduct resubmittal review costs from amounts due to you.

You must furnish and deliver to the Agency three (3) copies of operating and maintenance instructions and parts lists for all mechanical and electrical equipment furnished on the project. These instructions must be suitably bound in labeled and indexed ring binders. No progress payment in excess of ninety percent (90%) of the Contract amount will be made until all such instructions have been received from you.

REQUEST FOR INTERPRETATION (RFI)

- A. Request for Interpretation (RFI): Request from Contractor seeking interpretation or clarification of some requirement of Contract Documents and not involving change in Contract Sum or Contract Time.
 1. Improper RFI: An RFI meeting any of the following conditions:
 - i. RFI not prepared in accordance with requirements of this Section
 - ii. RFI missing graphic solution proposal from contractor where appropriate
 - iii. RFI with subject listed as improper subject matter in "GENERAL" article of this section.
 2. Frivolous RFI: RFI that requests information that is clearly indicated on or reasonably inferable from Contract Documents.
- B. Proposal Request: document issued by the City after Contract award which may include drawings and other information used to solicit proposal for change in Work.

GENERAL

- A. Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
- B. Submit RFI from subcontractor or material supplier through Contractor to City Representative who shall review and sign each RFI prior to submittal.
 1. City Representative will return RFIs submitted by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- C. Improper subjects for RFIs: Do not submit RFI for following:
 1. Requests for approval of submittals.
 2. Requests for approval of substitutions.
 3. Requests for approval of Contractor's means and methods.
 4. Requests for coordination information already indicated in the Contract Documents.
 5. Requests for coordination of various materials and systems indicated on Contract Documents with field conditions and with each other.
 6. To provide as-built information required by Record documents
 7. To request changes which are known to entail additional cost or credit, or alter Contract Time.
 8. Requests for interpretation of Architect's actions on submittals.
 9. Incomplete RFIs or inaccurately prepared RFIs.

Submit RFI on a form, subject to City Representative's prior review and approval. Form shall be completely filled in and if prepared and submitted electronically, and shall be fully legible. RFI must be submitted via web-based system. Address for web address and login information will be distributed at Pre-Construction Conference. Electronic form of attached Request for Interpretation

will be provided upon request. Number RFIs sequentially using only next sequential number. Do not include subcontractors RFI number on form; include date submitted. Each page of attachments to RFI shall bear RFI number and shall be consecutively numbered.

Content of RFIs:

1. Specifically identify if time response interpretation is required to avoid impact on Construction Schedule and Cost.
2. Include a detailed, legible description of item needing information or interpretation and the following:
 - Project name.
 - Project number.
 - Date.
 - Name of Contractor.
 - Name of City Representative
 - Name of Architect.
 - RFI number, numbered sequentially.
 - RFI subject.
 - Specification Section number and title and related paragraphs, as appropriate.
 - Drawing number and detail references, as appropriate.
 - Field dimensions and conditions, as appropriate.
 - Contractor's suggested resolution.
 - Contractor's signature.
3. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall notify the City of impact in the RFI.
4. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

RFI shall include written and graphic solutions proposed by Contractor. City, City Representative and Architect will determine if proposal is in accord with Contract Documents and design intent of Project.

1. Contractor's failure to make reasonable effort to propose realistic solution may result in Request for Interpretation returned with no action.
2. Submit separate RFI for each item or, subject to Architect's approval, group of closely related items requiring interpretation or clarification.

Improper or Frivolous RFI:

1. Will be returned unanswered and shall be labeled as frivolous in the official RFI log.
2. At Contractor's request, after notification by the City that RFI is improper or frivolous, RFI will be processed with processing costs charged to Contractor as follows:
2. Contractor shall reimburse City for Architect's account for time spent in processing improper or frivolous RFI at the following standard hourly rates. Hourly rates include mandatory and customary contributions and benefits including employment taxes and other statutory employee benefits, insurance, sick leave, holidays, vacations, pensions, and similar contributions and benefits.
 - a. Project Manager: \$189/hour.
 - b. Project Architect: \$120/hour.
 - c. Project Engineer: \$177/hour.

REVIEW

- A. Submit Electronic copy of completed RFI form to City Representative who will promptly forward to the Architect for action, including required attachments.
 1. RFI received after 3pm will have the following business day recorded as receipt of RFI date.
 2. RFI received after 12pm on Fridays will not be processed until the following Monday, which will be the recorded receipt of RFI date.

- B. Allow minimum of 14 calendar days review and response time for each RFI.
 - 1. Requested response time indicated on RFI shall be consistent with minimum review period specified.
 - 2. Requested response time will be extended where required by concurrent review of excessive number of RFIs, including improper and frivolous RFIs.
- C. Architect's Action: Architect will review each RFI, determine action required, and respond.
 - 1. The following RFIs will be returned without action:
 - a. RFIs that meet improper or frivolous definitions as listed in this section.
 - 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 - 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Order.
 - 4. If Contractor believes the RFI response warrants a change in the Contract Time or the Contract Sum, notify City Representative in writing within Five (5) calendar days of receipt of the RFI response.
- D. On receipt of Architect's action, the City Representative will distribute the RFI response to the affected parties. Review response and notify City Representative and Architect within Five (5) calendar days if Contractor disagrees with response.

MEASUREMENT AND PAYMENT – If there is no separate bid item listed all costs incurred shall be included in various bid items and will be full compensation for providing all labor, materials, tools, equipment and incidentals and for doing all the work involved in this section and no additional compensation will be allowed therefore.

SP-17 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 therefor. The application of water for dust control will not be considered as extra work under any circumstances.

SP-18 PROGRESS SCHEDULE

The CONTRACTOR shall submit a schedule which includes all major tasks and milestones to the City for review **at least** ten (10) working days prior to start of work. CONTRACTOR shall also produce updated schedule on a weekly basis during weekly progress meetings or as agreed by the ENGINEER.

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.

SP-19 SUPERINTENDENCE

The CONTRACTOR shall designate in writing 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.

SP-20 CONDUCT

- A. The use or consumption of alcoholic beverages or controlled substances is strictly forbidden on any part of City owned or controlled property.
- B. Contractor shall not permit any person to operate a motor vehicle or heavy equipment while taking prescription or non-prescription medication that may impair their ability to operate safely.
- C. City property is a NO SMOKING place. No smoking or use of tobacco products is allowed on the property. There are no designated smoking areas. Anyone found smoking will be immediately removed from the jobsite.
- D. Contractor personnel shall be courteous to all business invitees, visitors, City employees and consultant's staff.
- E. Unacceptable behavior on the part of the workers anywhere on the project site, including parking lots may lead to the identifiable Contractor's personnel being removed from the project.
- F. Personal grooming, personal hygiene and language by Contractors must be constructed in a professional manner at all times. Use of foul and off-color language will not be tolerated and can result in Contractor removal from jobsite.
- G. No clothing, accessories, or hardhat stickers that display political, offensive, derogatory or inflammatory wording or graphics shall be worn on the worksite.
- H. Workers clothing must be clean of visible dusts and dirt when outside of the Project site.
- I. No radios or music shall be allowed on the Project including headphone systems. Personnel must be able to hear alarms and warnings in the immediate area. (This does not pertain to the use of two-way hand held communication equipment or phones).

SP-21 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 Emergency Center at 911, if any gas lines or electrical power lines are broken or damaged.

SP-22 CLEANLINESS OF STREET

Attention is directed to Section 12.16.100 of the Pinole Municipal Code which reads:

Section 12.16.100: Vehicles Spilling Loads: It is unlawful for any person to use any vehicle for the conveyance or removal of dirt, gravel, rock or other material without having the same so constructed and loaded as to prevent contents thereof from being scattered or deposited upon the streets over which said vehicles may be driven.”

The contractor must keep the streets affected by this project mechanically swept at a frequency to be solely determined by the Engineer.

Full compensation for providing all labor, materials, tools, equipment and incidentals and for doing all the work involved in this section, complete in place, as shown on the plans, as specified in the Standard Specifications and as described in these Special Provisions, as directed by the Engineer are included in various bids items and no additional compensation will be allowed therefore.

SP-23 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 solely be responsible for securing staging and/or stockpiling areas other than that is available within the project limits.

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.

SP-24 RESPONSIBILITY FOR DAMAGE

The CONTRACTOR shall indemnify, hold harmless, release and defend the City, 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.

SP-25 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 Section 1-5, "Bonds and Insurance", of the General Conditions.

SP-26 NOTICE TO PROCEED, BEGINNING OF WORK, CONTRACT TIME, TIME OF COMPLETION, AND LIQUIDATED DAMAGES

The CONTRACTOR shall begin work within ten (10) working days from the date of Notice to Proceed and shall diligently prosecute the same to completion before the expiration of allocated working days for this project in the Construction Agreement 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's City Council to award the contract, to process the construction agreement, and to issue the Notice to Proceed.

A working day is defined as any day, except as follows:

- a. Saturdays, Sundays, and City of Pinole 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.

The CONTRACTOR shall pay to the City liquidated damages as mentioned in the Construction Agreement per day for each and every calendar day's delay in finishing the work in excess of the number of days prescribed for completion of this project (and/or in excess of the number of days prescribed for any scheduled operations or works described in the Special Provisions).

SP-27 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 or specified in "Order of Work" Section of these special provisions. Work hours for City of Pinole and Caltrans right of way shall be governed by their respective permit conditions.

Night Hours – Other than emergency work, there will be no night hours allowed on this project.

Administrative deductions in the sum of One thousand Dollars (\$1000) 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.

SP-28 RECORD ("AS-BUILT") DRAWINGS

The CONTRACTOR shall furnish Record Drawings of the complete project and procure from the ENGINEER 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 ENGINEER before the final acceptance of the project. If the CONTRACTOR fails to provide the City with an acceptable "Record Drawings", the City shall deduct **TWENTY THOUSAND DOLLARS (\$20,000)** from the amount due CONTRACTOR.

SP-29 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 1-11.3, "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 1-17.20 "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.

SP-30 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.

SP-31 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.

SP-32 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.

SP-33 STORM WATER MANAGEMENT, AND SEDIMENT AND EROSION CONTROL

CONTRACTOR shall prepare storm water management, and sediment and erosion control measures for implementation and shall maintain these measures during the construction period as required by the Regional Water Quality Control Board (RWQCB) permit.

As 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 all the fees including but not limited to annual construction general permit fees, annual construction general permit fees (biofiltration swale) etc., 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.

As 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 under the lump sum bid item "JOB SITE MAINTENANCE" and no additional compensation shall be allowed therefore.

SP-34 ITEM INCREASES AND DECREASES -

This section will not be applicable for the LUMP SUM bid items where the contractor is required to produce a mutually agreed upon schedule of values for progress payment.

Increased or Decreased Quantities

Increases or decreases in the quantity of a contract item of work will be determined by comparing the total pay quantity of that item of work with the ENGINEER's Estimate therefor.

If the total pay quantity of any item of work required under the contract varies from the ENGINEER's Estimate therefore by 25 percent or less for increases and 25 percent or less for decreases, payment will be made for the quantity of work of the item performed at the contract unit price.

If the total pay quantity of any item of work required under the contract varies from the ENGINEER's Estimate therefor by more than 25 percent for increases and 25 percent for decreases, in the absence of an executed contract change order specifying the compensation to be paid, the compensation payable to the CONTRACTOR will be determined in accordance with the following sections.

Increases of More Than 25 Percent

Should the total pay quantity of any item of work required under the contract exceed the ENGINEER's Estimate therefore by more than 25 percent, the work in excess of 125 percent of the estimate and not covered by an executed contract change order specifying the compensation to be paid therefor will be paid for by adjusting the contract unit price based upon a force account analysis.

The adjustment of the contract unit price will be the difference between the contract unit price and the actual unit cost which will be determined as hereinafter provided, of the total pay quantity of the item. If the costs applicable to the item of work include fixed costs, the fixed costs will be deemed to have been recovered by the CONTRACTOR by the payments made for 125 percent of the ENGINEER's Estimate of the quantity for the item, and in computing the actual unit cost, the fixed costs will be excluded. Subject to the above provisions, the actual unit cost will be determined by the ENGINEER in the same manner as if the work were to be paid for on a force account basis.

When the compensation payable for the number of units of an item of work performed in excess of 125 percent of the ENGINEER's Estimate is less than \$5,000 at the applicable contract unit price, the ENGINEER reserves the right to make no adjustment in the contract unit price if the ENGINEER so elects, except that an adjustment will be made if requested in writing by the CONTRACTOR.

Decreases of More Than 25 Percent

Should the total pay quantity of any item of work required under the contract be less than 25 percent of the ENGINEER's Estimate therefore, an adjustment in compensation pursuant to this Section will not be made unless the CONTRACTOR so requests in writing. If the CONTRACTOR so requests, the quantity of the item performed, unless covered by an executed contract change

order specifying the compensation payable therefor, will be paid for by adjusting the contract unit price based upon a force account analysis. In no case shall the payment for that work be less than that which would be made at the contract unit price.

The adjustment of the contract unit price will be the difference between the contract unit price and the actual unit cost, which will be determined as hereinafter provided, of the total pay quantity of the item, including fixed costs. The actual unit cost will be determined by the ENGINEER in the same manner as if the work were to be paid for on a force account basis; or the adjustment will be as agreed to by the CONTRACTOR and the ENGINEER.

The payment for the total pay quantity of the item of work will in no case exceed the payment which would be made for the performance of 25 percent of the ENGINEER's Estimate of the quantity for the item at the original contract unit price.

SP-35 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 Five Hundred Dollars (\$500) 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.

SP-36 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: <https://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>

The most current prevailing wage rates available at the time of bid opening shall be used.

SP-37 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. However, the Contractor shall submit a bid for each add alternate section. The City reserves the right to award, to the lowest responsive bidder, the combination of base bid plus add alternate sections that will allow the most work to be completed within the City's budget.

THIS PAGE INTENTIONALLY LEFT BLANK



IV. TECHNICAL SPECIFICATIONS

THIS PAGE INTENTIONALLY LEFT BLANK



SECTION IV. TECHNICAL SPECIFICATIONS
SS-2201 Sanitary Sewer Rehabilitation Project (Phase 1)

The Technical Specifications contained herein have been prepared by or under the direction of Daniel Wilkins, a registered professional engineer.



Daniel Wilkins, PE
Project Manager
West Valley Design-Build
925-407-7337
dwilkins@wvcc.com

Date: 9/29/2023

TABLE OF CONTENTS:

Section 01100: Mobilization and Demobilization
Section 01350: Bypass Pumping
Section 01710: Final Clean-up
Section 02050: Demolition, Abandonment and Removal
Section 02140: Dewatering
Section 02200: Trenching, Excavation, Shoring and Backfill
Section 02345: Pipe Bursting
Section 02513: Hot Mix Asphalt Pavement and Base
Section 02600: Side Sewers
Section 02701: Manhole and Cleanout Construction
Section 02735: Cleaning of Gravity Sewers
Section 02736: Television Inspection of Sanitary Sewer System
Section 02737: Sanitary Sewer System Testing
Section 03300: Cast in Place Concrete
Section 03600: Grout
Section 15050: General Piping
Section 15064: Polyvinyl Chloride Pipe
Section 15066: High Density Polyethylene Pipe

APPENDICES

Appendix A: Geotechnical Report

**TECHNICAL SPECIFICATIONS
SECTION 01100**

MOBILIZATION AND DEMOBILIZATION

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Mobilization shall include the obtaining of all permits; moving all equipment onto the site; complying with City's Sewer Overflow Response Plan; temporary buildings if needed, and other construction facilities; as required for the proper performance and completion of the work. Demobilization shall include moving all equipment and materials offsite, and cleanup of all work areas.
- B. Mobilization shall include but not be limited to the following principal items:
1. Signed Contract by the City and the Contractor.
 2. Completion of all tasks and submittal of all documents (bonds, insurance, schedule, Water Pollution Control Plan, etc.) required as conditions of issuing the Notice to Proceed.
 3. Moving on to the site of all Contractors' equipment required for operations.
 4. Installing temporary construction water supply, power, wiring, and lighting facilities, as required.
 5. Providing field office trailers if needed by the Contractor.
 6. Arrange for and develop temporary staging areas for storage and operation of construction equipment and supplies.
 7. Notification with property owners
 8. Providing all on-site communication facilities, including telephones, and radio pagers.
 9. Obtaining all required permits, including any permit needed from the City of Pinole.
 10. Providing and updating schedule of work.
 11. Having all OSHA required notices and establishment of safety programs.
 12. Attendance at Pre-Construction Conference of Contractor's principal construction personnel.
 13. Complying with City's Sewer Overflow Response Plan.
 14. Preparing and maintaining "as-built" Record Drawing plan markup set.
 15. Physical verification (potholing) of existing utilities.

16. Pre-construction Cleaning/CCTV Inspection must be completed and approved by the City prior to commencing the installation or construction of facilities.
 17. Construction Schedules (including Mobilization, Baseline and updates)
- C. Demobilization shall include but not be limited to the following principal items:
1. Moving all equipment and leftover material offsite.
 2. Cleanup of work area as directed by Engineer.

D. **PHYSICAL VERIFICATION (POTHOLING) OF EXISTING UTILITIES**

The Contractor shall pothole potential utility conflicts prior to commencing the installation or construction of facilities.

The potholing and submittal of the results for all sites shall be done as a first order of work so that the Engineer has sufficient time to address any conflicts. Removal or reworking of facilities installed without utility potholing as herein provided shall be considered work under this Contract and not extra work. Potholing shall be performed prior to any excavation in the project areas.

After potholing, the Contractor shall backfill the excavation and restore the pavement surface in accordance with these specifications.

PART 2 - PRODUCTS

2.01 NOT USED

PART 3 - EXECUTION

Partial payments for Mobilization and Demobilization shall conform to Public Contracting Code §10264.

PART 4 - PAYMENT

The Contract lump sum price paid for **Mobilization** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the applicable work specified in these Specifications including mobilization, property owner notification, construction staking, potholing, documentation of existing conditions and water pollution prevention and preparation of the SWPPP, demobilization, etc and no additional compensation shall be allowed. Total price for Mobilization shall not exceed five percent (5%) of the Total Base Bid.

Mobilization shall be billed as follows: (1) no more than 40% of the unit lump sum price will be billed on the first invoice; (2) 30% of the unit lump sum price will be billed after majority of submittals have been approved, potholing is completed and construction staking has been performed; and (3) 30% of the unit lump sum price will be billed on the final invoice after demobilization is completed.

****END OF SECTION****

SECTION 01350
BYPASS PUMPING

PART 1 - GENERAL

1.01 DESCRIPTION

The Contractor shall provide bypass pumping when required for acceptable completion of the pipe installation. The bypass pumping system shall be disconnected and the sanitary sewer system shall be returned to gravity flow operation at the end of each work day. Bypass pumping shall consist of furnishing, installing, and maintaining all power, primary and standby pumps, appurtenances and bypass piping required to maintain existing flows. Contractor shall provide and connect a backup pump to the bypass pumping system prior to beginning bypass operations. The Contractor shall submit a plan for bypass pumping prior to the beginning of construction and at least 10 working days prior to pipe installation. The bypass pumping system shall not be left unattended when it is operating. The bypass pumping plan shall include an emergency response plan to be followed in the event of a failure of the bypass pumping system. The bypass pumping plan shall describe the method of ensuring leak-free joints in the bypass hose or pipe. The Contractor shall notify the Engineer 24 hours prior to commencing the bypass pumping operation. The Contractor's plan for sewage bypass pumping shall be satisfactory to the Engineer before the Contractor shall be allowed to commence sewage bypass pumping.

The sizing of the bypass pumps, pipes and entire bypass pumping system shall be based on the maximum capacity of the pipe being bypassed.

Bypass pumping shall be done in such a manner as not to damage private or public property, create a nuisance or public menace, impede traffic flow, or impede access to adjacent private property. Removal of manhole cones and covers is allowed if needed to fit the bypass hoses into the manhole. Contractor shall replace manhole cones and covers according to City standard details after removal of bypass system. The pumped sewage shall be in an enclosed hose or pipe that is adequately protected from traffic, and shall be redirected into a sanitary sewer system. Protection of the hose from traffic across street intersections shall include traffic-rated steel ramps over the hose. At least one (1) driveway to each parcel along the project shall remain open and unblocked by the hose at all times. Dumping or free flow of sewage on private property, gutters, streets, sidewalks, or into storm sewers is prohibited. If private property is used for bypass pumping equipment, the Contractor shall obtain written permission from the Property Owner(s) and provide a copy to the City prior to mobilization. The Contractor shall be liable for all cleanup, damages, and resultant fines in the event of a spill. After the work is completed, flow shall be returned to the rehabilitated sewer and all temporary equipment removed.

Bypass pumping shall be performed with low noise-level pumps. Bypass pumping shall conform to noise level limitation as stated in the City of Pinole Municipal Code for all hours of work.

The Contractor shall be responsible for providing a bypass system adequate to bypass all flows around the work site and shall submit a Bypass Pumping Plan to the City as part of the Traffic Control Plan. Refer to Special Provisions and plans for description of Traffic Control Plans. All proposed Bypass Pumping Plans shall be reviewed and authorized by the City prior to work.

The Contractor shall take all necessary precautions to ensure that no private properties are subjected to a sewage backup or spill.

The Contractor shall perform hydro-testing of the bypass pumping system to detect any leaks prior to bypassing of the sewage flow.

The Contractor shall request in writing to all the residents and businesses whose building sewer is temporarily disconnected to minimize water use during this period including use of sinks, showers, toilets, washing machines, dishwashers, and draining of swimming pools.

The Contractor shall pump out or otherwise positively drain all locations, a minimum of once every 24 hours, where the building sewer is disconnected from the main sewer for more than one day. More frequent pumping, as needed to prevent overflows, shall be used in locations where wastewater flows exceed the capacity of temporary storage provided by the Contractor.

1.02 FLOW CONTROL PRECAUTIONS

When flow in a sewer is bypassed, precautions shall be taken to protect all sewers from damage that might result from sewer surcharging. Precautions shall also be taken to insure that flow control operations do not cause flooding or damage to public or private property being served by the sewers involved.

PART 2 - PRODUCTS

2.01 MATERIALS

To be selected by the contractor for Engineer's approval.

PART 3 - EXECUTION

3.01 METHODS

See Part 1 above

PART 4 - PAYMENT

The Contract lump sum price paid for **Bypass Pumping** shall include full compensation for furnishing all labor, materials, tools equipment, and incidentals and for doing all the applicable work specified in these Specifications including bypassing all sewer flows, and no additional compensation shall be allowed.

**** END OF SECTION ****

SECTION 01710

FINAL CLEAN-UP

PART 1 - GENERAL

1.01 FINAL SITE CLEAN-UP

Upon completion of the Work, and prior to final Acceptance, the Contractor shall remove from the vicinity of the Work all plant, surplus material, and equipment belonging to the Contractor or used under its direction during construction.

In addition to general broom cleaning of paved surfaces and rake cleaning of other surfaces of grounds, the following shall be performed at completion of the Work:

- A. Remove waste and debris from the entire site.
- B. Sweep paved areas.
- C. Clean/landscape areas.
- D. Clean storm drains.

1.02 FINAL BUILDING CLEAN-UP

On all building projects and wherever else applicable, besides final site cleanup, the following special cleaning shall be performed at completion of the Work:

- A. Putty stains and paint shall be removed from glass; glass shall be washed inside and outside. Care shall be exercised so as not to scratch glass.
- B. Marks, stains, fingerprints, and other soil and dirt shall be removed from painted, decorated, or stained work.
- C. Waxed woodwork shall be cleaned and polished.
- D. Hardware shall be cleaned and polished of all traces; this shall include removal of stains, dust, dirt, paints, and blemishes.
- E. Spots, soil, paint, plaster, and concrete shall be removed from tile; tile work shall be washed afterwards.
- F. Fixtures, equipment, and visible piping and ducts shall be cleaned and stains, paint, dirt, and dust shall be removed.
- G. Temporary floor protections shall be removed; floors shall be cleaned, waxed, and buffed.
- H. Dust, cobwebs, and traces of insects and dirt shall be removed.

- I. Marred surfaces shall be repaired, patched, and touched up to specified finish to match adjacent surfaces.
- J. All interior spaces including inside cabinets shall be vacuum cleaned.
- K. Air handling filters and light bulbs shall be replaced if units were operated during construction. Ducts, blowers and coils shall be cleaned if air-handling units were operated without filters during construction.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

PART 4 - 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 02050

DEMOLITION, ABANDONMENT AND REMOVAL

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all tools, equipment, materials, and supplies and shall perform all labor as required for the demolition, salvage, relocation, and removal of equipment, structures, facilities, and electrical and mechanical equipment as required.
- B. This specification addresses demolition, removal and abandonment of facilities, and associated debris generated in the execution of the contract work.
 - 1. Do not begin demolition until authorization is received from the City Representative.
 - 2. Remove rubbish and debris from the job site daily.
 - 3. Store materials that cannot be removed daily in the Contractor's approved laydown and storage areas, following all requirements established by the property owner and associated permitting jurisdiction.
 - 4. Properly dispose of materials and debris removed from the site. Disposal shall comply with all federal, state and local regulations.

1.02 RELATED SECTIONS

- A. Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**

1.03 REFERENCE SPECIFICATIONS

- A. American National Standards Institute (ANSI)
 - 1. ANSI A10.6 – Demolition Operations-Safety Requirements

1.04 SUBMITTALS

- A. The Contractor shall submit a proposed Demolition Plan, including the following:
 - 1. Proposed demolition and removal procedures.
 - 2. Detailed description of methods and equipment to be used for each operation and of the sequence of operations.

1.05 WORK AND SAFETY REQUIREMENTS

- A. Comply with federal, state, and local hauling and disposal regulations. Work safety requirements shall conform with ANSI A10.6, "Demolition Operations – Safety Requirements."

1.06 DUST AND DEBRIS CONTROL

- A. Prevent the spread of dust and debris, and avoid the creation of a nuisance or hazard in the surrounding area.
- B. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, flooding, or pollution.
- C. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicles.

1.07 PROTECTION

- A. Traffic Control Signs - Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Refer to the "Traffic Control" Subsection of the Special Provisions for additional requirements.
- B. Existing Work - Protect existing work which is to remain in place. Repair items which are to remain, and which are damaged during performance of the work to their pre-construction condition, or replace with new. Do not overload pavements to remain. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement must have City approval.
- C. Facilities - Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. Additional regulatory requirements, permits, and/or temporary controls may be required and shall in accordance with project specific Contract Documents, if applicable.

1.08 BURNING AND EXPLOSIVES

- A. Burning and the use of explosives will not be permitted.

1.09 RELOCATIONS

- A. Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair items to be relocated which are damaged or replace damaged items with new undamaged items as approved by the City and governing jurisdiction.

1.10 ASBESTOS CEMENT PIPE REMOVAL

- A. Care shall be given in handling, working with, removing, disposing, or abandoning existing pipe and facilities containing asbestos such as asbestos cement pipe (transite pipe). Current federal and State laws and regulations govern how such pipe can be handled and disposed of during construction procedures. The contractor shall follow all applicable federal, state and Cal OSHA regulations while handling the pipe, and it will be his sole responsibility to adhere to these regulations. Only appropriately licensed hazardous waste contractors and subcontractors may do said asbestos work if the asbestos material is friable. The contractor will notify the District and the County prior to doing this work and provide documentation that the material has been properly disposed of.
- B. If any asbestos material is to be removed from the ground for disposal, it shall be considered a hazardous waste, and it shall be properly disposed of in accordance with all current federal, state and local regulations.

PART 2 - PRODUCTS

2.01 NOT USED

PART 3 - EXECUTION

3.01 GENERAL

- A. Demolition, abandonment, and removal shall be performed in accordance with the requirements of these Standard Specifications and Standard Details.
- B. The Contractor shall take care to protect existing facilities outside the limits of work. Facilities outside the limits of work damaged by the Contractor's construction operations shall be repaired to their original condition at the Contractor's expense.

3.02 EXISTING FACILITIES TO BE REMOVED

- A. Removal of Existing Pipes, Manholes and Related Equipment
 - 1. Remove indicated existing sanitary sewer mains and manholes to the horizontal limits shown on the drawings. Existing alignment is shown based on record information. Actual locations of existing utilities may be different from that shown.
 - 2. Submit to the Engineer a plan and coordinated construction schedule for removal of existing active sewer facilities and reconnecting existing system elements to the permanent facilities as shown on the drawings.
- B. Abandonment of Existing Pipes
 - 1. Abandonment and plugging of existing pipelines that are indicated on the Drawings shall include the filling of existing sewers with Controlled Low Strength Material (CLSM) or Low Density Cellular Concrete as specified in Section **02200, TRENCHING, EXCAVATION, SHORING AND**

BACKFILL and installation of a tight fitting plug or wall of Portland cement concrete a minimum of two feet thick to securely close pipeline, including excavation, backfill, and replacement of pavement section and/or landscaping as prior to work. A section of pipeline shall be removed adjacent to manholes that will remain in service after sewer abandonment.

2. CLSM or LDCC shall be injected into the pipe as required.
3. Watertight bulkheads shall be provided to facilitate the placement of the CLSM or LDCC (fill material) as required. The fill material shall be thoroughly settled and compacted through the entire depth of the layer that is being consolidated into a dense, homogeneous mass.
4. The Contractor shall provide and install PVC pipe to feed and vent the fill material placement. The number of PVC pipes, size, and length shall be as required and determined by the Contractor.
5. The fill material shall be continuously placed against fresh material, unless otherwise approved by the City. Where new fill material must be placed against existing material, the placement shall be clean of all loose and foreign material. The surface of existing fill material shall be soaked a minimum of 1 hour before placement of fresh fill material. No standing water will be allowed before starting placement of fresh fill material.

C. Abandonment of Existing Manholes

1. Existing manholes to be abandoned shall have the castings, grade rings, and manhole body removed to the bottom of the cone section with the removal of the manhole rings to a minimum of four (4) feet below street grade or existing ground elevation. After plugging of existing pipelines at the manhole, the remainder of the manhole barrel shall then be filled and compacted with CLSM or Class 2 aggregate base material as specified in Section **02200, TRENCHING, EXCAVATION, SHORING AND BACKFILL** and as shown on the plans. The manhole frame and cover shall be salvaged and provided to the City. The removed concrete shall be disposed of by the Contractor in accordance with this Specification and state regulations.

D. Paving and Slabs

1. Remove asphaltic concrete paving and slabs, and concrete paving and slabs, including aggregate base in areas subject to proposed work.
2. Trench wing width is shown on the plans. Where the distance from the lip of concrete gutter to the saw cut edge of the trench is less than half of the width of the trench, the remaining pavement between the saw cut edge of the trench and the lip of the concrete gutter shall also be removed and replaced during this work.
3. Provide neat sawcuts at limits of pavement removal as indicated.

4. Contractor shall comply with all environmental regulations and local codes and dispose of all material at State approved recycling facilities or Class II landfills.

3.03 DEMOLITION

- A. Disposal of all materials shall be performed in compliance with all applicable local, State, and Federal codes and requirements.
- B. Where the demolition of major equipment or structures is required, removal of auxiliary systems such as water, auxiliary equipment, drainage, electrical wiring, controls, and instrumentation not necessarily shown shall also be performed unless otherwise indicated.
- C. Wiring demolition shall be performed by electricians. Before removing or cutting wiring, check to be sure that it is wiring intended to be cut or removed, and label wiring which is to remain. Labels shall be fully documented on wiring diagrams, interconnection diagrams, elementary diagrams, and conduit and wire schedules. Wire bundles shall be rolled up and placed "out of the way" to the extent practicable.
- D. Where existing materials and equipment are removed or relocated, remove all materials no longer used such as studs, straps, conduits, and wires. Remove or cut off concealed or embedded conduit, boxes, or other materials and equipment to a point at least 3/4 inch below the final finished surface.
- E. Where existing pipes and electrical conduits, supports, or hangers are removed from existing structures, fill all resulting holes in the structures and repair any resulting damage such that the finished rehabilitated structure shall appear as a new homogeneous unit with little or no indication of where the new and old materials join. The holes in water-bearing structures shall be filled with non-shrink grout to be watertight and reinforced as required. In all locations where the surface of the grout will be exposed to view, the non-shrink grout shall be recessed to approximately 1/2-inch back of the exposed surface and the recessed area filled with cement mortar grout, color to match existing concrete.

3.04 DISPOSITION OF MATERIAL

- A. Title to Materials
 1. Unless otherwise shown or specified, all materials and equipment removed shall become the property of the Contractor and shall be removed.
 2. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the Contracting Officer of the contractor's demolition and removal procedures, and authorization by the Construction Manager to begin demolition.
 3. The City will not be responsible for the condition or loss of, or damage to, such property after notice to proceed.

4. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

3.05 CLEANUP

A. Debris and Rubbish

1. Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets or adjacent areas.
2. Clean up spillage from pavements, streets and adjacent areas.

PART 4 - 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.

The Contract Unit Price paid for **“Remove Existing SSMH”** shall be paid per each manhole removed and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals required remove existing structures including removal and disposal of the existing structure, site clearing/preparation, sawcutting, removal and disposal of existing pavement, sidewalk, driveway, curb and gutter; dewatering, excavation, sheeting and shoring, backfill, compaction, disposal of waste materials, approved support of existing utilities, protection of existing utilities, surface restoration as part of final restoration, and for performing all the work involved as shown on the Plans, and all other incidentals required to abandon existing manholes complete in place as shown on the Plans, as specified and as directed by the Engineer.

The Contract Unit Price paid for **“Abandon Ex SS by Filling”** shall be paid per each manhole abandoned in-place and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals required abandoning existing sewer pipe including draining and proper disposal of wastewater, filling with CLSM or LDCC, temporary bulkheads, plugging pipes and manholes with concrete, any additional sawcutting and excavation as needed, testing, and for performing all the work involved as shown on the Plans, and all other incidentals required to abandon existing sewer pipes complete in place as shown on the Plans, as specified and as directed by the Engineer.

The Contract Unit Price paid for **“Investigation/Abandonment of Sewer Laterals Found to be Inactive”** shall be paid per each inactive lateral found and abandoned in-place and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals required for doing all the work involved in the investigation to determining if the lateral is abandoned, including excavating, dewatering as needed, demolition and removal of PCC/AC pavement surfaces, CCTV inspection, disconnection of service lateral, piping, fittings, filling pipe with slurry (if necessary), providing and placement of crushed rock, backfilling and compacting, geotextile fabric, compaction testing, temporary steel plates, testing, temporary and final pavement restoration, and for performing all the work involved as shown on the Plans, and all other incidentals required to abandon inactive laterals complete in place as shown on the Plans, as specified and as directed by the Engineer. This Bid Item is revocable if no abandonment of sewer laterals is required.

*****END OF SECTION*****

SECTION 02140

DEWATERING

PART 1 - GENERAL

1.01 SUMMARY

- A. This section specifies requirements for dewatering and disposal of water from excavations. Standing water in excavations will not be allowed.
- B. No water shall be discharged into existing sanitary sewers, or new sanitary sewers constructed unless a Special Discharge Permit is obtained from the San Francisco Bay Regional Water Pollution Control Agency.
- C. The discharge of water from excavation dewatering operations into the sanitary sewer system within twenty four (24) hours of a rain event will be prohibited.
- D. The discharge of water from excavation dewatering operations into the sanitary sewer system shall not exceed a flow rate of fifty (50) gallons per minute at any time.
- E. Any dewatering procedures discharged into the storm drain system, if allowed, shall conform to the requirements of the State Regional Water Quality Control Board and the Federal Clean Water Act, as well as the requirements of the City. No water shall be discharged into the storm drain system unless the necessary permits have been obtained.
- F. The Contractor shall:
 - 1. Design, 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. Dewatering shall be accomplished by methods that will ensure a dry excavation and preserve the final lines and grades of the bottoms of excavations.
 - 2. Provide all labor, materials, and equipment necessary to adequately dewater excavations so that pipe and structures that are installed in excavations are free from standing, flowing or boiling groundwater, surface water, storm water, precipitation, or wastewater; filter soil; and prevent loss of ground from dispersion or erosion.
 - 3. Secure and comply with the provisions of permits required for dewatering operations, including permits from the San Francisco Bay Regional Water Pollution Control Agency.
 - 4. Comply with all Federal, State, and local laws and regulations concerning environmental pollution arising from construction activities.

5. Drawdown the groundwater level a minimum of one (1) feet below the pipe invert bottom and beyond excavation sidewalls where shoring is not designed to resist hydrostatic pressures.
6. Control the rate and effect of dewatering so as to avoid settlement, subsidence or damage to structures or facilities adjacent to areas of proposed dewatering.
7. Be fully responsible and liable for all damages that result from failure to adequately keep excavations dewatered, and shall repair, restore and/or replace facilities or structures damaged as a result of dewatering operations.

1.02 RELATED SECTIONS

- A. Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**
- B. Section 02735, **CLEANING OF GRAVITY SEWERS**
- C. Section 02736, **TELEVISION INSPECTION OF SANITARY SEWER SYSTEM**
- D. Section 02737, **SANITARY SEWER SYSTEM TESTING**

1.03 SUBMITTALS

- A. The Contractor shall submit a plan for all excavation dewatering procedures in accordance with the "Submittals" subsection of the Special Provisions. The dewatering plan shall include the following:
 1. Location(s) where water is to be disposed.
 2. Scale drawings showing locations of dewatering systems.
 3. A copy of required discharge permit(s).
 4. Details of dewatering systems, such as:
 - a. Drilled hole and well casing diameter, slotted and solid lengths
 - b. Sand packer gradation
 - c. Size and capacity of pumps
 - d. Filtration system acceptable to the City and other agencies having jurisdiction

1.04 QUALITY ASSURANCE

- A. Where structures, utilities and/or facilities exist adjacent to areas of proposed dewatering, the Contractor shall establish reference points and shall survey these reference points daily to quickly detect any settlement, subsidence or damage that may develop during or following dewatering operations.

- B. If disposal of water to the sanitary sewer is allowed, televising and cleaning of downstream sewers may be required at the City's discretion, and shall be done per the requirements set forth in Section 02735, **CLEANING OF GRAVITY SEWERS** and Section 02736, **TELEVISION INSPECTION OF SANITARY SEWER SYSTEM**
- C. Wrap end of suction and discharge pipes with filter fabric, as specified in Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL** filter the water.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Dewatering, where required, may include the use of wells, well points, sump pumps, storage tanks, settling tanks, filters, temporary pipelines for water disposal, rock or gravel placement, standby pumps and/or generators, and other means.

PART 3 - EXECUTION

3.01 GENERAL

- A. Work shall meet or exceed the requirements of these Specifications unless applicable requirements of an agency having jurisdiction (including the terms and conditions of an encroachment permit issued by a city or county) are greater, in which case the greater requirements shall govern.
- B. The Contractor's dewatering operations shall not interfere with vehicle or pedestrian traffic. Under no circumstances shall dewatering water be allowed to flood streets or cause hazardous conditions for traffic. Dewatering pump noise shall be mitigated, especially at night, as required by applicable laws and ordinances and as prescribed by authorities having jurisdiction.
- C. Dewatering for structures and pipelines shall commence when groundwater is first encountered, and shall continue until water can be allowed to rise without affecting structures, piping, and other project features.
- D. Site grading shall promote drainage. Surface runoff shall be diverted prior to it entering excavations to maintain the bottom of the excavation free from standing water.
- E. Dewatering shall be conducted so as to preserve the undisturbed bearing capacity of the subgrade soils at the proposed bottom of excavation, filter soil particles and prevent loss of ground due to dispersion and erosion. Dewatering shall lower the water outside the excavation, if necessary to insure that seepage and migration of soil particles does not occur through openings in the shoring.
- F. If subgrade soils are disturbed or loosened by the seepage or flow of water, the affected areas shall be excavated and replacement backfill placed in accordance with Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**.

- G. The Contractor shall prevent pipeline and/or structure flotation by maintaining a positive and continuous removal of water.
- H. If dewatering wells are used, they shall be adequately spaced to provide the required dewatering, and the Contractor shall use sand packing and/or other means to prevent pumping of soil particles (e.g., fine sand) from the subsurface. The Contractor shall continuously monitor the dewatering water discharge to ensure that subsurface soil is not being removed by the dewatering operation.
- I. The demobilization of dewatering operations shall be performed so as to allow groundwater to rise to its ambient (static) level without disturbing natural foundation soils or compacted backfill, and prevent flotation or movement of structures, pipelines, and sewers.
- J. The Contractor shall properly dispose of water without nuisance or damage to adjacent property, in accordance with its Water Pollution Control Plan.

3.02 DISCHARGE INTO THE SANITARY SEWER SYSTEM

- A. The Contractor shall obtain and comply with all requirements of the approved special discharge permit.
- B. If the discharge is cloudy, murky, or otherwise colored, or where required by the City, the discharged water shall be settled or filtered using a City approved method to remove sand, silt, and fine soil particles before disposal into any sanitary sewer system. At a minimum, the filtration system should include a filter fabric bag attached to the discharge outlet and a debris trap in downstream manhole(s). If discharge continues to be murky or colored, or if these methods are determined to be inadequate by the City, then additional settlement and/or filtration will be required. Additional treatment may include the use of Baker or Adler tanks, and/or particulate filtration systems.
- C. Discharge rate into the sewer system shall be metered and shall not exceed fifty (50) gallons per minute at any time.
- D. The Contractor shall remove and dispose of any material that accumulates in the sanitary sewer systems as a result of dewatering operations.

3.03 DISCHARGE INTO THE STORM DRAIN SYSTEM

- A. The Contractor shall obtain and comply with all required dewatering discharge permits from the State Regional Water Quality Control Board.
- B. Dewatering discharge shall be in conformance with the WPCP, if applicable, and the State Water Resources Control Board Construction General Permit.

PART 4 - 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 02200

TRENCHING, EXCAVATION, SHORING AND BACKFILL

PART 1 - GENERAL

1.01 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only, and the latest, accepted revision of the text shall apply.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1557 Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457-mm) Drop

ASTM D 2487 Classification of Soils for Engineering Purposes

ASTM D 2922 Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

CALIFORNIA HEALTH AND SAFETY CODE

1.02 DEFINITIONS

A. Backfill

Material used in refilling a cut, trench or other excavation.

B. Compaction

The process of mechanically stabilizing a material by increasing its density at a controlled moisture condition. "Degree of Compaction" is expressed as a percentage of the maximum density obtained by the test procedure described in ASTM D 1557 for general soil types, abbreviated in this specification as "95 percent compaction."

C. Hard Material

Weathered rock, dense consolidated deposits, or conglomerate materials (excluding man made materials such as concrete) which are not included in the definition of "rock" but which usually require the use of heavy excavation equipment, ripper teeth, or jack hammers for removal.

D. Lift

A layer (or course) of soil placed on top of subgrade or a previously prepared or placed soil in a fill or backfill.

E. Pit

An excavation that is approximately the same width and length.

F. Refill

Material placed in excavation to correct overcut in depth.

G. Subgrade

The material in excavation (cuts) and fills (embankments) immediately below any subbase, base, pavement, or other improvement. Also, as a secondary definition, the level below which work above is referenced.

H. Trench

An excavation that is much longer in length than in width.

I. Unyielding Material

Rock rib, ridge, rock protrusion, or soil with cobbles in the trench bottom requiring a covering of finer grain material or special bedding to avoid bridging in the pipe or conduit.

J. Unsuitable Material

Existing material which in the opinion of the Engineer is unsuitable as a foundation, including but not limited to unstable material, ground water, vegetal matter, garbage and trash; and materials classified in ASTM D 2487 as PT, OH, and OL. Unsuitable materials also include "bay mud", man-made fills, refuse, and unsuitable backfills from previous construction, either on the surface or buried. Unsuitable material shall also be materials too wet to properly support the utility pipe, conduit, or appurtenant structure.

1.03 SUBMITTALS

Submit the following:

A. Statements

1. Shoring and sheeting plan

Describe materials of shoring system to be used. Indicate whether or not components will remain after filling or backfilling. Provide plans, sketches, or details along with calculations by a professional engineer registered in California. Indicate sequence and method of installation and removal.

2. Dewatering plan

Describe methods for removing collected water from open trenches and diverting surface water or piped flow away from work area. Describe equipment and procedures for installing and operating the dewatering system indicated per Section 02140.

3. Copy of CAL-OSHA permit
4. Controlled Low Strength Material
 - a. When CLSM is used, the Contractor shall submit the following:
 - i. Mix design for CLSM, including materials, proportions, and gradations, to be used and their sources. The mix designs shall be tested by an independent testing laboratory for properties specified herein. The results of the independent testing laboratory shall be submitted with the CLSM mix designs. All costs related to such testing shall be borne by the Contractor.
 - ii. Test results from compression tests, as specified herein.
5. Low Density Cellular Concrete (LDCC)
 - a. When LDCC is used, the Contractor shall submit the following:
 - i. Mix design for LDCC, including materials, proportions, and gradations, to be used and their sources. The mix designs shall be tested by an independent testing laboratory for properties specified herein. The results of the independent testing laboratory shall be submitted with the LDCC mix designs. All costs related to such testing shall be borne by the Contractor.
 - ii. Resume of contractor showing experience as specified below, including qualifications of contractor's superintendent and/or foreman.
 - iii. Description of equipment and placement methods to verify compliance with specifications.
 - iv. Test results from compression tests, as specified herein.
6. Mix design and certification for slurry cement backfill.
7. Aggregate characteristics for aggregate base demonstrating compliance with these specifications.

1.04 QUALITY ASSURANCE

A. Testing:

1. The Contractor shall be responsible for all testing of backfill materials and compaction. Tests shall be made in accordance with the following:

<u>Test</u>	<u>Standard Procedure</u>
Moisture content	ASTM D3017
Gradation	ASTM C136
Density in-place	ASTM D2922
Moisture-density relationships	ASTM D1557

2. Geotextile Fabric (Filter Fabric)
- a. Testing. All materials testing will be based upon application ASTM Test Methods and referenced herein for the materials specified.
 - b. All costs of such inspection and tests shall be borne by the Contractor.
 - c. Certificates. Manufacturer's notarized certificates of compliance shall be furnished by the Contractor.

3. Low Density Cellular Concrete (LDCC)
- a. The Contractor shall have a record of experience and quality of work placing LDCC that is satisfactory to the Engineer including the following:
 - i. Shall be capable of developing a mix design, batching, mixing, handling, and placing of LDCC.
 - ii. Shall be regularly engaged in the production and placement of LDCC for engineered fills.
 - iii. Workers, including the contractor's superintendent and/or foreman, shall be fully qualified to perform the work and have had previous experience in production and placement of LDCC under similar conditions.
 - b. Testing
 - i. Testing shall be performed by an approved agency.
 - ii. A minimum of four (4) 3 inch by 6 inch cylinders shall be molded for each 100 cubic yards placed.
 - iii. LDCC may be tested at any age (after 3 days) for compressive strength in accordance with ASTM C-495. At least two (2) specimens from each set should be tested at 28 days unless otherwise approved by engineer.

- iv. Contractor shall record and measure wet cast densities at the point of placement hourly. Mix shall be adjusted as required to obtain the specified cast density at the point of placement.”

4. CLSM

- a. When controlled low strength material (CLSM) is used as a backfill, the Contractor shall take a minimum of two (2) cylinders for testing by the City. The Contractor shall furnish the cans for the test cylinders and pour the CLSM into the cans. The test cans shall be marked with the date and stored on the job site in conditions similar to the backfill that was poured. The City will pay for the testing.

1.05 DELIVERY, STORAGE, AND HANDLING

Deliver and store materials in a manner to prevent contamination, segregation, freezing, and other damage.

1.06 PROTECTION

A. Dewatering Plan

The Contractor Shall Prepare a Dewatering Plan in accordance with Section 02140, **DEWATERING**.

B. Utilities

The Contractor's shall comply with the "Physical Conditions - Underground Utilities" Subsection of the General Provisions. Movement of construction machinery and equipment over pipes and utilities during construction shall be at the Contractor's risk. Perform work adjacent to existing utilities as indicated in accordance with procedures outlined by utility company and these specifications. Excavation made with power-driven equipment is not permitted within two feet of known utility or subsurface construction. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, excavate by hand. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured. Support uncovered lines or other existing work affected by the contract excavation until the Engineer grants approval for backfill. Report damage to utility lines or subsurface construction immediately to the Engineer.

1.07 REUSE OF MATERIALS

Contractor shall employ excavation and backfill methods that promote the reuse of native soil if approved by the City.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

Provide soil materials as specified below free of debris, roots, wood, scrap material, vegetable matter, refuse, soft unsound particles, ice, or other deleterious and objectionable materials.

A. Suitable Native Material

Suitable Native Material shall be native material that has sufficient strength and stability to carry intended trench loads without excessive consolidation or loss of stability. Backfill materials which contain refuse, frozen material, large rocks, debris, soluble particles, or other material which limit compaction abilities shall not be used. Materials classified as PT, OH, or OL by ASTM D 2487 shall also not be used as backfill.

B. Permeable Material

1. Permeable material shall be Class 1, Type A permeable material in accordance with Section 68 of the Caltrans Standard Specifications.

C. Controlled Low Strength Material (CLSM)

1. Controlled low strength material (CLSM) shall be manufactured in accordance with the following referenced standards. It shall be a hand-excavatable mixture of aggregate, cement, pozzolan, water and admixtures to be used as fill material where indicated in this specification or on the drawings. CLSM shall meet the requirements of Section 201-6 of the APWA Standard Specifications for Public Works Construction.
2. CLSM material shall have the following properties:
 - a. Cement shall be Type II in accordance with ASTM C150.
 - b. Pozzolan shall be Type F in accordance with ASTM C618.
 - c. Coarse aggregate shall consist of a well-graded mixture of crushed rock, soil, or sand with a maximum size aggregate of 3/8 inch. One hundred percent shall pass the 1/2-inch sieve. Not more than 30 percent shall be retained by the 3/8-inch sieve and not more than 20 percent shall pass the No. 200 sieve. All material shall be free from organic matter and not contain more alkali, sulfates or salts than the native soils at the site of the work.
 - d. Air entraining shall be used to improve the workability of the mixture in accordance with ASTM C260. Entrained air content shall be between 8 and 20 percent.
 - e. Water reducing agent shall be added to improve the workability and shall be in accordance with ASTM C494.

- f. Water shall be potable, clean and free from objectionable quantities of silty organic matter, alkali, salts and other impurities.
- g. CLSM shall be a flowable material similar in all respects to Pozzolanic International Flowable Compacting Fill by RMC Lonestar, or equal. The 28-day compressive strength shall be between 50 and 150 psi.
- h. CLSM that has a 28-day compressive strength in excess of 150 psi shall be removed as directed by the City or the Construction Manager and replaced with CLSM meeting the specifications at no additional cost to the City.

D. Low Density Cellular Concrete (LDCC)

- 1. LDCC shall be used for filling the annular space in pipes to be sliplined. LDCC material may also be used for pipe or structure abandonment, or for backfill of trench zone and for structure backfill where specifically required.
- 2. LDCC shall be hand-excavatable mixture of cement, foam, and water that has been mixed, in accordance with ASTM C94.
- 3. LDCC Materials
 - a. Portland cement shall comply with ASTM C150 (Type II).
 - b. Fly ash shall be Class C or Class F and compatible with foaming agent.
 - c. Water shall be free from deleterious substances.
 - d. Foam shall be Geofill Concentrate conforming to ASTM C796; or equal.
 - e. Admixtures for water reducing, retarding, accelerating, anti-washout and other specific properties may be used when specifically approved by the manufacturer of the preformed foam.
- 4. LDCC shall meet the following requirements, unless otherwise specified:

Cast Density, Per ASTM D2922	26-30 PCF
Minimum Compressive Strength	50 PSI
Min 12 hr Compressive Strength	20 PSI
Maximum Compressive Strength	150 PSI
Freeze-Thaw Resistance	330 Cycles
Min Modified Shear Modulus (G) per ASTM D4015 at confining stress of 3 PSI	27,000 PSI
Young's Modulus (E) based on	67,000 PSI

Poisson's Ratio u = 0.22 and E=2G (1+u)	
Min Relative E percent at cast	70%
Max Water Absorption after 120 days	20%
Coefficient of Permeability (k) per ASTM D2434	
Confining stress, 2.5 PSI	4.7x10-5 cm/sec
Confining stress, 18 PSI	1.9x10-5 cm/sec

- E. Slurry Cement Backfill shall comply with Section 19-3.02D of the Standard Specifications.
- F. Pea Gravel shall be screened gravel with particle sizes ranging between 3/16" and 3/8" in diameter.
- G. Aggregate Base shall be Class 2, 3/4" maximum in accordance with Section 26 of the Standard Specifications.
- H. Sand
 - 1. Sand shall be free of organics and other deleterious materials.
 - 2. Sand shall meet the following gradation requirements:

<u>Sieve Size</u>	<u>Percentage Passing</u>
3/8-inch	100
No. 4	90 – 100

PART 3 - EXECUTION

3.01 PROTECTION

A. Shoring and Sheeting

Provide shoring bracing, cribbing, trench boxes, underpinning, and sheeting. In addition to California Health and Safety Code Requirements include provisions in the shoring and sheeting plan that will accomplish the following:

- 1. Prevent undermining of pavements, foundations and slabs.

2. Prevent slippage or movement in banks, slopes or existing utility trench backfill material adjacent to the excavation.

B. Dewatering

1. Water cannot be discharged to the ground, any navigable waterway, or a storm drain under any circumstances. Water cannot be discharged to a sanitary sewer or industrial waste sewer if any of the following exist:
 - a. Water within the excavation has an odor, oil sheen, sediments, or the ground is suspected of being contaminated with oil.
 - b. If the contractor has added any pollutants to the water during the process, e.g. cleaning solutions, solvents, or oil contamination.
 - c. The contractor or City Inspector has any reason to believe the water could be polluted from infiltration of sanitary wastewater.
2. Plan for and provide all labor, material and equipment, for the collection and disposal of water encountered in the course of construction. Such water shall be handled as follows:
 - a. Water may be discharged to the sanitary sewer system after sediment has been removed.

C. Water Removal

Remove water by pumping or other methods to prevent the softening of surfaces exposed by excavation, prevent hydrostatic uplift, and provide a stable trench condition for installation of the utility. Use screens and gravel packs or other filtering systems on the dewatering devices to prevent the removal of fines from the soil.

D. Structures and Surfaces

Protect newly backfilled areas and adjacent structures, slopes, or grades from traffic, erosion settlement, or any other damage. Repair and reestablish damaged or eroded grades and slopes and restore surface construction prior to acceptance. Protect existing streams, ditches, and storm drain inlets from water-borne soil by means of straw bale dike.

1. Disposal of Excavated Material

Dispose of excavated material so that it will not obstruct the flow of runoff, streams, endanger a partly finished structure, impair the efficiency or appearance of any facilities, or be detrimental to the completed work. Excavated material not suitable for backfilling shall be legally disposed offsite at Contractor's expense by the end of each work day.

E. Landscaping and Hardscaping

Protect all trees, bushes, ground cover, walkways, and driveways not to be removed from damage. Replace all landscaping or hardscaping removed or damaged during construction as prior to construction before acceptance of work.

Contractor shall contact the Engineer prior to excavating near a tree or when encountering tree roots that are 2-inches in diameter or larger.

3.02 SURFACE PREPARATION

A. Cutting Pavement, Curbs, and Gutters

For final pavement, saw cut with neat, parallel, straight lines one foot wider than trench width on each side of trenches and two feet beyond each edge of pits.

3.03 GENERAL EXCAVATION AND TRENCHING

Keep excavations free from water while construction is in progress. Notify the Engineer immediately in writing if it becomes necessary to remove rock or hard, unstable, or otherwise unsuitable material to a depth greater than indicated. Make trench sides as nearly vertical as practicable. Sides of trenches shall not be sloped from the bottom of the trench up to the elevation of the top of the pipe. Excavate ledge rock, boulders, and other unyielding material to an over depth at least 6 inches below the bottom of the pipe and appurtenances unless otherwise indicated or specified. Blasting will not be permitted.

Provide protection for roots over one inch in diameter that are cut during construction operations. Coat cut faces with an emulsified asphalt or other acceptable coating formulated to use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

Over excavate soft, weak, or wet excavations as approved by the Engineer. Use bedding material placed in 6-inch-maximum layers to refill overdepths to the proper grade. Grade bottom of trenches accurately to provide uniform bearing and support for each section of pipe on undisturbed soil, or bedding material as indicated or specified at every point along its entire length except for portions where it is necessary to excavate for bell holes and for making proper joints. Dig bell holes and depressions for joints after trench has been graded. Dimension of bell holes shall be as required for properly making the particular type of joint to ensure that the bell does not bear on the bottom of the excavation. Trench dimensions shall be as indicated or specified.

Open trenches and open manholes shall not be left unattended.

A. Shoring and Sheeting

Shore and sheet excavations as described in the plan submitted with various member sizes arranged to prevent injury to persons and damage to structures. Arrange shoring and sheeting to preclude injurious caving during removal. Obtain approval from the Engineer prior to removing shoring, sheeting, or bracing in excavations adjacent to on-grade slabs, foundations, or other structural elements.

1. General

Contractor shall support the faces of excavations and shall protect structures and improvements in the vicinity of excavations from damage due to settlement of soils and alterations in the ground water level caused by such excavations and related operations.

- a. The provisions specified hereunder shall be understood to:
 - i. Complement, and not to substitute or diminish, the obligations of Contractor for the furnishing of a safe place to work pursuant to the provisions of the Occupational Safety and Health Act of 1970 and its subsequent amendments and regulations and for the protection of the work, structures, and other improvements.
 - ii. Represent a minimum requirement for:
 - (1) The number and types of means needed to maintain soil stability.
 - (2) The strength of such required means.

The methods and frequency of maintenance and observation of the means used for maintaining soil stability.
- b. Safe and stable excavations shall be provided by means of sheeting, shoring, bracing, sloping, and other means and procedures, such as draining and recharging groundwater and routing and disposing of surface runoff, required to maintain the stability of soils.

Contractor shall provide excavation support in trenches for the protection of workers from the hazard of caving ground.

Shoring shall be provided:

- c. Where, as a result of excavation work and an analysis performed pursuant to general engineering design practice, as defined hereinafter.
 - i. The excavated face or surrounding soil mass may be subject to slides, caving, or other types of failures.

Settlement or movement of soils may compromise the stability and integrity of structures, utilities, and other improvements.
- d. For trench excavation 5 feet and deeper.

e. Where indicated on the drawings.

2. Definitions

As used under this title of stability of excavations, general engineering design practice shall be understood to mean the general engineering design practice in the area of the Project performed in accordance with recent engineering literature on the subject of shoring and stability of excavations.

a. Where general engineering design practice is specified, it shall be understood that the design shall be performed, and the drawings and calculations shall be signed, by a civil or structural engineer registered in the State of California.

i. The design calculations shall disclose clearly the assumptions made, the criteria followed, and the stress values used for the various materials.

ii. Where requested by the Engineer, the Contractor shall furnish acceptable references substantiating the appropriateness of the design assumptions, criteria, and stress values.

Shoring shall be understood to mean a temporary structural system designed to support vertical faces of soil or rock for the purposes of excavation. Shoring shall include cantilevered sheet piling, internally braced sheet piling, slurry walls, soldier piles and lagging, and other similar shoring systems. Sloping of the soil shall not be considered as shoring.

3. Design Criteria

Means for safe and stable excavations shall be designed in accordance with general engineering design practice.

The design shall be in accordance with soil characteristics and design recommendations contained in the geotechnical report on file with the City and available for use by the Contractor.

Steel members shall be designed in accordance with the AISC Manual of Steel Construction.

4. Performance Requirements

Appropriate design and procedures for construction and maintenance shall be used to minimize settlement of the supported ground and to prevent damage to existing structures and other improvements. Such design and procedures shall include:

a. Using stiff support systems.

- b. Following an appropriate construction sequence.
- c. Preventing soil loss through or under the support system.
 - i. The support system shall be tight enough to prevent loss of soil and shall be extended deep enough to prevent heave or flow of soils from the supported soil mass into the excavation.
 - ii. Where sheet piling is used, the sheet piling shall be interlocked.
- d. Providing surface runoff routing and discharge away from the excavations.
- e. Recharging groundwater, where necessary.
 - i. Where dewatering is necessary, Contractor shall recharge the ground water as necessary to prevent settlement in the area surrounding the excavation. Where sheet piling is used, the sheet piling shall be interlocked.
- f. Not applying shoring loads to existing structures and other improvements.
- g. Not changing existing soil loading on existing structures and other improvements.

Installation and Removal

- h. Means for providing safe and stable excavations shall be installed as indicated in the approved submittals.
- i. Excavation, including trenching, shall not begin until the excavation design submittals have been accepted by the Engineer and until the materials necessary for the installation are on site.
- j. The Engineer reserves the right to order the sheeting driven to the full depth of the trench or to such additional depths as may be required for the protection of the work. Where the soil in the lower limits of a trench has the necessary stability, the Engineer, at his discretion, may permit the Contractor to stop the driving of sheeting at some designated elevation above the trench bottom. However, the granting of permission by the Engineer shall not relieve the Contractor in any degree from his full responsibility under the contract.
- k. Trench bracing shall be removed when the backfilling has reached the respective levels of such bracing. Sheeting shall be removed after the backfilling has been completed or has been brought up to such an elevation as to permit its safe removal. Sheeting and

bracing shall be removed in such a manner as will insure the adequate protection of the completed structures and adjacent underground or surface structures, and prevent the disturbance of the adjacent ground.

- I. Open trenches outside of non-working hours are not allowed. Excavations left open after working hours shall be covered with steel plates so as not to present a hazard to the public, and shall be limited to structure excavations or 50 feet of steel plate at the working end of the trench, and shall conform to the City Standard Guidance Specifications and the requirements for bridging of excavations below.

5. Maintenance

- a. Where loss of soil occurs, Contractor shall plug the gap in the shoring and shall replace the lost soil with suitable fill material.
- b. Where measurements and observations indicate the possibility of failure of the excavation support, determined in accordance with general engineering design practice, Contractor shall take appropriate action immediately.

B. Over-excavation of Trench Due to Unsuitable Soil Conditions

1. The Contractor shall notify the Engineer if unstable subgrade is exposed during excavation in advance of placing any pipeline, or the construction of any appurtenant structures. Where directed by the Engineer, unsuitable material shall be removed and disposed. The Contractor shall excavate and remove such unsuitable material to the width and depth ordered by the Engineer.
2. Whenever unstable soil conditions are encountered, or otherwise shown or specified, all pipes, and appurtenant structures shall be constructed on a minimum of six (6) inches of permeable bedding surrounded by filter fabric. Filter fabric used with permeable bedding shall conform to the requirements of Section 88 -1.03 (Edge Drains) of the Standard Specifications. Permeable bedding material shall meet all of the quality requirements of Section 68-1.025 Permeable Material, Class I, Type A of the Standard Specifications. No material shall be used as permeable bedding unless it has been approved by the Inspector.
3. Whenever permeable bedding material is used where the pipe slope exceeds 1.0 %, construct a 2'-0 length of slurry cement backfill as bedding instead of permeable material spaced at approximately 75 feet to prohibit groundwater migration in bedding.
4. If the necessity for such additional bedding material has been used by an act or failure to act on the part of the Contractor, the Contractor shall bear the expense of the additional excavation and bedding.

3.04 BACKFILLING

Backfilling shall be as described on the plans. Where the specified compaction cannot be achieved due to inadequate space between existing utilities and/or facilities, CLSM or LDCC shall be used as backfill, if approved by the City. For backfill with CLSM or LDCC, ensure that pipe does not move or float during place of material.

A. CONTROLLED LOW STRENGTH MATERIAL

1. General:

- a. CLSM shall be used where indicated in the Drawings, or in localized areas where there is inadequate space between utilities and/or facilities to properly compact backfill. CLSM may be poured in place to fill inaccessible areas, or as a backfill where approved by the City or Construction Manager. CLSM placed in and around structures or pipelines shall be as specified herein, in the Standard Details, and in APWA Standard Specifications, Section 201-6.6.
- b. Where CLSM is used, placement of backfill on top of the CLSM shall not be allowed until the CLSM passes the ball drop test of ASTM D6024.

2. Structure Backfill: Where indicated in the Standard Details or the Contract Documents, CLSM shall be placed around structures as backfill evenly so that uneven loading of the structure does not occur as a result of the CLSM placement. A minimum of two lifts shall be used in placing the CLSM around structures. Where structures have pipes entering/exiting the structure, CLSM shall be placed in accordance with placement of CLSM for pipe installation locations.

3. Pipe Backfill: Where CLSM is used as trench backfill within the pipe zone, it shall be placed into the trench around the pipe so that the CLSM is placed evenly on both sides of the pipe to prevent uneven loading of the pipe. CLSM shall not be placed directly onto the pipe. The maximum depth of the first lift of CLSM shall not allow the pipe to move or float. Subsequent lifts of CLSM shall be placed so that the pipe does not shift or float. CLSM placed in trenches with steep slopes shall be placed in lifts to prevent flotation of the pipe, and the Contractor shall install approved anchor blocks as needed to secure the pipe in place during placement of the CLSM. Use of anchor blocks or deadman concrete collars may be used by Contractor with written approval by the Construction Manager.

B. LOW DENSITY CELLULAR CONCRETE

1. Production.

- a. Foam generating equipment shall be used to produce a predetermined quantity of pre-formed foam which shall be mixed and blended with cementitious slurry. Equipment shall be

calibrated to produce consistent foam with stable, uniform cellular structure.

- b. When producing neat cellular concrete (no sand or other aggregates), pre-formed foam under no circumstances shall be added or blended with cementitious slurry in a transit mixer.
- c. LDCC shall be produced utilizing specialized automated proportioning, mixing, and foam producing equipment, which is capable of meeting the specified properties.
- d. Avoid excessive handling of the material. After sufficient mixing of the foam with slurry, LDCC shall be conveyed promptly in its final location.
- e. All equipment used must be approved by foam manufacturer.
- f. Placement
- g. Prior to placement of LDCC, the ground surface shall be excavated to the lines and grades shown on the plans.
- h. There shall be no standing water in the area to be filled. If necessary, dewatering shall be continuous during placement of materials.
- i. Any items to be encased in LDCC shall be set in place and secured prior to installation of material.
- j. Placement shall not be allowed on frozen ground.
- k. Place LDCC in such a manner so that minimal consolidation of material occurs during or after placement. Placement of LDCC shall not exceed depths as recommended by the manufacturer.
- l. Final surface of LDCC shall be within ± 0.2 feet of the plan elevations.
- m. LDCC shall not be vibrated or disturbed. Vehicles, equipment, backfills or other loadings on the fill material shall not be permitted until the material has attained an adequate compressive strength.

2. Weather Limitations

Fill and backfill shall not be constructed when weather conditions detrimentally affect the quality of the finished course. Place fill and backfill only if the atmospheric temperature is above freezing in the shade and is rising. Do not construct fill and backfill in the rain or on saturated subgrades. If weather conditions are windy, hot or arid, with high rate of evaporation, schedule the placement in cooler portions of the day and furnish equipment to add moisture to the fill or backfill during and after

placement.

3.05 BRIDGING OF EXCAVATION

Whenever necessary, trenches and excavations shall be bridged to permit an unobstructed flow of traffic.

Steel plates used for bridging must extend one foot beyond the edges of the trench. Temporary paving materials (premix) shall be used to feather the edges of the plates to minimize wheel impact.

Bridging shall be installed to operate with minimal noise.

The trench must be adequately shored to support the bridging and traffic.

Bridging must be secured against displacement by using adjustable cleats, angles, bolts, or other devices.

Non traffic-bearing trench covers shall not be used.

3.06 COMPACTION

Use hand-operated, plate-type, vibratory, or other suitable hand tampers in areas not accessible to larger rollers or compactors. Avoid damaging pipes and protective pipe coatings. Compact material in accordance with the following unless otherwise specified. If necessary, alter, change, or modify selected equipment or compaction methods to meet specified compaction requirements.

A. Compaction of Material in Subcuts or Overexcavations

In soft, weak, or wet soils, tamp refill material to consolidate to density of adjacent material in trench wall. In stable soils, compact to 95 percent of ASTM D 1557 maximum density.

B. Compaction of Pipe and Conduit Bedding

Of materials and depths as indicated or specified for utility lines and utility line structures, place bedding in 4-inch maximum loose lifts and compact as specified in the plans. Provide uniform and continuous support for each section of structure except at bell holes or depressions necessary for making proper joints.

C. Compaction of Backfill

Compact backfill material to the percentage of ASTM D 1557 maximum density shown on City Standard, Typical Trench Bottom Dimensions and Backfill.

Where the specified compaction cannot be achieved due to inadequate space between existing utilities and/or facilities, CLSM shall be used as backfill.

D. Manholes and Other Appurtenances

Provide at least 12 inches clear from outer surfaces to the embankment or

shoring. Remove rock as specified herein. Remove unstable soil that is incapable of supporting the structure to an overdepth of one foot and refill with gravel to the proper elevation. Stabilize soft, weak, or wet excavations as indicated. Refill overdepths with gravel to the required grade and compact to 95 percent of ASTM D 1557 maximum density.

E. Compaction for Structures and Pavements

Place final backfill in 6-inch-maximum loose lifts. If a vibratory roller is used for compaction of final backfill, the lift thickness can be increased to 8 inches. Backfill to permit the rolling and compacting of the completed excavation with the adjoining material, providing the specified density necessary to enable paving of the area immediately after backfilling has been completed.

3.07 CONTAMINATED MATERIALS

A. Where Contract Documents indicate potential locations of soil contamination in required excavations, or where contaminated materials are encountered, then all work shall comply with the following codes:

1. Code of Federal Regulations – Title 40 – Protection of the Environment, Part 761 (40 CFR 761)
2. California Code of Regulations, Title 22, Social Security, Division 4, Environmental Health, Chapter 30 – Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes

B. The Contractor shall submit the following to the City for review:

1. Job Plan: The Contractor shall prepare and submit to the Engineer, for review, a detailed Job Plan describing the proposed methods and procedures for excavating, segregating, testing, and disposing of petroliferous soil or groundwater. The Job Plan shall be submitted to the Engineer no less than fourteen (14) days prior to the start of any excavation work at locations where contaminated soils and ground water is anticipated.
2. The Job Plan shall include step-by-step procedures for the actions to be taken in identifying, handling, removing, and disposing of any contaminated soil or groundwater encountered during excavation. The Job Plan shall include a description of monitoring considerations, subcontractor participation, and shall demonstrate conformance to environmental, local, State, and Federal laws and regulations. All required permits, licenses, certificates of disposal, and manifests shall be referenced. The equipment and procedures described in this section are intended to serve as guideline for the Contractor's use in preparing the Job Plan.
3. Health and Safety Plan: At least fourteen (14) days before the start of any excavation at locations where contaminated soils and ground water are anticipated, the Contractor shall prepare and submit to the Engineer,

for review, a Health and Safety Plan. The Health and Safety Plan shall be prepared by an industrial hygienist certified by the American Board of Industrial Hygiene and shall include, but not be limited to, training of the Contractor's personnel, protective equipment, air monitoring, sampling, and emergency procedures.

4. No excavation will be allowed to commence until the Health and Safety Plan has been returned by the City to the Contractor with the notation: "Resubmittal not required".
5. Manifests: Copies of hazardous waste transporter licenses, permits, or registrations for all states in which the shipment shall travel.
6. Permits and Licenses: The Contractor shall obtain all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including certification of transport vehicles carrying hazardous material. The National Environmental Quality Act of 1970 (Chapter 1433, STATS. 1970), as amended by Chapter 1154 STATS. 1972, may be applicable to permits, licenses and authorizations which the Contractor shall obtain from local agencies in connection with performing the work of the contract. The Contractor shall comply with the provisions of said statutes in obtaining such permits, licenses and authorizations.
7. Certified Testing Laboratory: Contractor shall submit documentation attesting to the certification and QA/QC procedures for the testing laboratory to be used.

C. MONITORING

1. Contractor shall furnish a properly calibrated, fully functional organic vapor analyzer (OVA) for use at the site of every excavation or open trench. The OVA shall utilize the principle of hydrogen flame ionizations, shall incorporate a chemically-resistant sampling system, shall provide accurate indication of gas concentration over the range of 0 to 10 parts per million (ppm), shall continuously sample and monitor the ambient atmosphere, shall provide both visible readouts and audible alarms, and shall be outfitted with a recording strip-chart or other permanent recording device.
2. If the OVA provides more than one (1) monitoring scale, then the monitor shall be set to monitor over the zero (0) to ten (10) ppm range at all times during use.
3. The audible alarms shall be set to activate at a level equal to ten (10) percent of the lower explosive limit (LEL) for methane.
4. The organic vapor analyzer shall be a Model OVA 128 Century Organic Vapor Analyzer, as manufactured by the Foxboro Company, Foxboro, Massachusetts, or approved equal.

5. The Contractor shall calibrate and make available the OVA equipment daily.
6. The preliminary mode of examination for petroliferous soil and/or groundwater shall be through visual and olfactory means. Upon the first observation of soil or water that may contain petroliferous products, the Contractor shall stop excavation work and immediately notify the Engineer. No excavation of petroliferous soil, nor pumping of petroliferous water, shall proceed without the approval of the Engineer.
7. Following sensory observation of petroliferous products, the OVA equipment shall be brought to the excavation site and the atmosphere shall be tested. The Contractor's Job Plan and Health and Safety Plan shall be immediately placed into effect.
8. Potentially contaminated soil or water shall be segregated and tested by the Contractor, at a certified laboratory approved by the Engineer, to determine the consistency and quantity of petroliferous products. Costs for testing shall be paid by the Contractor. The soil or water shall then be disposed of in accordance with applicable local, State, and Federal law, following the procedures described in the Contractor's Job Plan and Health and Safety Plan.

D. CONTAMINATED MATERIALS HANDLING AND DISPOSAL

1. The Contractor shall avoid or minimize excavation in contaminated areas whenever possible.
2. Excavated trench material that, in the opinion of the Engineer exhibits evidence of petroleum contaminated shall be removed from the site and temporarily stockpiled by the Contractor. The location of the temporary stockpile area must be reviewed by the City. The contaminated trench materials shall be placed on 10 mil polyethylene sheeting to prevent contamination of uncontaminated soils and shall be separated from all uncontaminated trench materials. The temporary stockpiles of contaminated trench materials shall be covered securely with 10 mil polyethylene sheeting to limit emissions and prevent rainfall from entering the stockpile. Runoff or drainage from the temporary stockpile shall be prevented from leaving the area and all materials shall be surrounded with 6-foot high temporary chainlink fence.
3. The temporary stockpiles of contaminated trench materials shall be sampled and analyzed by a certified testing laboratory, approved by the Engineer, that is retained and paid for by the Contractor. Results of the laboratory analysis shall be provided by the Engineer within seven (7) calendar days from the date that the material is stockpiled.
4. Disposal of the contaminated trench materials will depend on the results of the testing program. The Contractor shall dispose of the contaminated material in one of the following two ways with the approval of the Engineer.

- a. Option 1: Thermal Remediation and Disposal
 - i. The Contractor shall be responsible for storage, loading, transporting, and loading the contaminated soil to a plant licensed by the State of California to do remediation of the soil contamination.
 - ii. Certification of Remediation of Contaminated Soils certifying that the contamination has been destroyed and the soil is inert shall be provided by the Contractor to the City. The Certificate shall include a provision holding the City harmless as a result of the thermal remediation work done for the project.

- b. Option 2: Disposal in a Class II Landfill
 - i. The Contractor shall be responsible for proper handling, loading, transporting, and unloading the contaminated soil to a Class II Landfill. The disposal site shall be selected by the Contractor subject to City approval.
 - ii. A manifest or certificate attesting that the contaminated soil has been delivered and accepted by a licensed landfill authorized to accept such contaminated soil shall be provided by the Contractor to the City.
 - iii. All handling, storing, transporting, treatment, and disposal of contaminated soil and groundwater shall conform with Federal and State environmental regulations, including those of the Regional Water Quality Control Board, Department of Toxic Substance Control, Integrated Waste Management Board, State Air Resources Control Board, and the Bay Area Air Quality Management City. Transport of contaminated material and groundwater shall be performed by appropriately certified and/or licensed personnel.
 - iv. Upon completion of excavation within the contaminated area and the hauling and disposal of contaminated materials, the Contractor shall clean up the site, including proper removal and disposal of all plastic sheetings, containers, and other materials used.
 - v. Any groundwater from trenching activities within the contaminated soil area, as shown on the plan shall be stored in temporary Baker-type storage tanks. The Contractor shall pay for the groundwater to be sampled and analyzed by a certified testing laboratory approved by the Engineer. After testing, Contractor shall dispose of the stored groundwater as directed by the Engineer. If analyzed samples indicate that the groundwater may be

discharged into the sewer system, no additional payment will be made to the Contractor. If analyzed samples indicate that the groundwater cannot be discharged into the sewer system, a change order for disposal only, will be negotiated with the Contractor.

3.08 FINISH OPERATIONS

A. Finishing Subgrades Under Structures and Pavements

Finish surface of top lift of fill or top of subgrade to the elevation and cross section indicated. Finished surface shall be smooth and of uniform texture. Lightly scarify or blade the finished surface to bring the finished surface to within 5/8 inch of the indicated grade and to eliminate imprints made by compaction and shaping equipment. Surface shall show no deviations in excess of 3/8 inch when tested with a 10-foot straightedge.

B. Disposition of Surplus Material

Surplus or other soil material not required or suitable for filling, backfilling, or grading shall be disposed of at contractor's expense.

C. Protection of Surfaces

Protect newly graded areas from traffic, erosion, and settlements that may occur. Repair or reestablish damaged grades, elevations, or slopes.

D. Pavement Repair

Repair pavement, curbs, and gutters if they are affected by construction operations. Do not repair pavement until trench or pit has been backfilled and compacted as specified herein. Provide a temporary road surface of asphalt cut-back over backfilled portion until permanent pavement is repaired. Remove and dispose of temporary road surface material when permanent pavement is placed. Permanent pavement thickness shall be as thick as the existing pavement thickness.

E. Hardscaping Repair

Repair all driveways and walkways removed or damaged by the construction with like material to the same condition as prior to construction to the satisfaction of the Engineer.

F. Landscaping Replacement

Replace all trees, bushes, and groundcover removed or damaged by the construction with like replacement plants (same species, age, health, etc.) as prior to construction to the satisfaction of the Engineer.

3.09 FIELD QUALITY CONTROL

Compaction tests for sand, gravel and backfill for conformance to specified requirements shall be done and paid for by the Contractor. Compaction testing shall be performed on the backfill at all excavations including, but not limited to, insertion pits/trenches, receiving pits/trenches, and lateral reconnection pits/trenches. Compaction testing shall be conducted on each lift at each pit and trench.

A. Acceptance

Acceptance of the compacted materials shall be determined in each lift of material as described in Section 3.4 by the results of one field in-place density test to be provided by the Contractor. The result of the test shall equal or exceed the specified average density requirement. Fill shall be accepted or rejected by lift with a complete lift being reworked in the event of rejection. Retesting of rejected fill shall be at Contractor's expense.

PART 4 - PAYMENT

Unless there is a specific bid item for various items of earthwork, full compensation for all other items as described in this section shall be considered as included in the contract price paid for various other items of work and no separate payment shall be made therefore.

The Contract Unit Price paid for **Overexcavation and Special Pipe Foundation** shall be paid by cubic yard and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved for overexcavation in excess of normal excavations paid under various other items where directed by the City or its appointed representative as specified herein and for performing all work as shown on the Plans, as specified and as directed by the Engineer. This Bid Item is revocable if no unsatisfactory soil is encountered and overexcavation is not required. No adjustment in the contract unit price for Construct **Overexcavation and Special Pipe Foundation** shall be made for increases or decreases of more than 25 percent of the quantities set forth in the Schedule of Bid Prices, and provisions of SP-34 "Item Increases and Decreases" shall not apply.

The Contract Unit Price paid for **Rock Excavation** shall be paid by cubic yard and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved including for removal of hard rock or hard material as defined in this section and where directed by the City or its appointed representative as specified herein and for performing all work as shown on the Plans, as specified and as directed by the Engineer. This Bid Item is revocable if no hard rock is encountered. No adjustment in the contract unit price for **Rock Excavation** shall be made for increases or decreases of more than 25 percent of the quantities set forth in the Schedule of Bid Prices, and provisions of SP-34 "Item Increases and Decreases" shall not apply.

The Contract lump sum price paid for **Trench Sheet piling, Shoring and Bracing** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the applicable work specified in these Specifications including engineering fees incurred by the Contractor for the design of adequate shoring system and no additional compensation shall be allowed.

**** END OF SECTION ****

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 02345

PIPE BURSTING

PART 1 - GENERAL

1.01 SUMMARY

- A. This specification covers the work necessary to furnish and install, complete and in place, high density polyethylene pipe (HDPE) pipe by the pipe bursting method of all diameters necessary, as shown on the drawings and specified herein.
- B. The Contractor shall provide all materials, labor, equipment, and services necessary for bypass pumping and/or diversion of sewage flows, installation of the pipe, reconnection of lateral sewers, and CCTV inspection and testing of the completed pipe system.

1.02 RELATED SECTION

- A. Section 01350, **BYPASS PUMPING**
- B. Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**
- C. Section 02735 **CLEANING OF GRAVITY SEWERS**
- D. Section 02736, **TELEVISION INSPECTION OF SANITARY SEWER SYSTEM**
- E. Section 02737, **SANITARY SEWER SYSTEM TESTING**
- F. Section 15050, **PIPING, GENERAL**
- G. Section 15066, **HIGH DENSITY POLYTHYLENE (HDPE) PIPE**

1.03 EXPERIENCE REQUIREMENTS

- A. Contractor shall have a minimum of three (3) pipe bursting projects of similar diameter, length, soil type and installation conditions successfully completed within the last 3 years.
- B. The Contractor shall furnish a manufacturer's certificate affidavit of compliance for all HDPE pipe and fittings furnished confirming that the materials supplied fully conform to the requirements specified herein.
- C. The Contractor shall perform trial fusion welds and submit samples to the Engineer for review prior to installation of the pipe. Full penetration welds shall provide a homogeneous material across the cross section of the weld. The fusion machine employed for the trial welds shall be the same machine to be utilized for the installation work.

- D. Fusion equipment shall be operated only by technicians who have been certified by the pipe manufacturer or supplier and who have a minimum of three (3) years of experience fusion welding 4-inch or larger diameter HDPE pipelines. The technician's experience shall be documented in the bid submittal.

1.04 SUBMITTALS

- A. The Contractor shall submit catalog cuts, specifications, dimensioned drawings, the proposed diameters of bursting head and expander to be used for each pipe size manufacturer's recommendation for installation, installation details and sketches, and other pertinent information for the HDPE pipe installation work. All materials provided shall be fully in accordance with the requirements of the reference specifications specified herein.
- B. The Contractor shall submit detail drawings and a written description of the construction procedure, sequence to bypass sewage flow, install pipe, and reconnect lateral sewers.
- C. The Contractor shall submit Pre- and Post-CCTV Inspection videos of all sanitary sewer mains within the scope of work. See Section 02736, **TELEVISION INSPECTION OF SANITARY SEWER SYSTEM**.
- D. The Contractor shall submit a copy of the technician's certification(s) for the operation of the fusion equipment.
- E. Submit debanding process and equipment for use in removing the internal bead for the newly joined HDPE pipe sections.

1.05 QUALITY ASSURANCE

- A. Quality assurance procedures shall be performed by the pipe manufacturer fully in accordance with the requirements of this specification. The certification shall include certified laboratory data confirming that said tests have been performed on a sample of the pipe to be provided under this contract, or pipe from that production run, and that satisfactory results were obtained.
- B. Fusion joining and other procedures necessary for correct assembly of the pipe shall be done only by personnel trained in those skills and have three years of experience in fusion joining, to the satisfaction of the Engineer and the pipe manufacturer/supplier.
- C. Only those tools designed for the aforementioned procedures, and approved by the pipe manufacturer or supplier and the Engineer, shall be used for assembly of pipe fittings to ensure proper installation. The heater plate shall be equipped with suitable means to measure the temperature of plate surfaces and to assure uniform heating such as thermometers or pyrometers.
- D. Pipe insertion equipment shall be operated only by technicians who have a minimum of three years of experience in the installation of the pipe as specified herein. The technician's experience shall be documented in the bid submittal.

- E. The Contractor shall videotape the installed pipe after existing services have been reconnected and manhole work has been completed. The original television inspection videotape shall be provided to the Engineer for approval.
- F. The Contractor and/or Subcontractor performing the pipe bursting work, if applicable, shall provide to the City a warranty to be in force and effect for a period of one (1) year from the date of final project acceptance by the City. The warranty shall require the Contractor and/or Subcontractor to repair or replace the pipe should leakage, separation, collapse or other failure result from faulty materials or installation as determined by the City or Engineer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. The Contractor shall exercise special care during the unloading, handling, and storage of all polyethylene pipe to ensure that the pipe is not cut, gouged, scored or otherwise damaged. Any pipe segment which has cuts in the pipe wall exceeding 10 percent of the wall thickness shall be cut out and removed from the site at the Contractor's cost. The pipe shall be stored so that it is not deformed axially or circumferentially.
- B. All pipe without an ultraviolet inhibitor shall not be stored uncovered outside.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Piping used for pipe bursting shall be High Density Polyethylene (HDPE) pipe as specified in Section 15066, **HIGH DENSITY POLYETHYLENE (HDPE)**.
- B. Joints: pipe shall be joined by butt fusion welding, as specified Section 15066, **HIGH DENSITY POLYETHYLENE (HDPE) PIPE**.

2.02 LATERAL RECONNECTIONS

- A. All active sewer laterals shall be reconnected to the main line by use of electrofusion saddles.
 - 1. Lateral connections to sanitary sewer mains 12 inch in diameter (nominal) or smaller shall be with an electrofusion "wye" type saddle, manufactured by Central Plastics or approved equal.
 - 2. Lateral connections to sanitary sewer mains greater than 12 inch in diameter (nominal) may be with a "tee" type saddle if the "wye" type electrofusion saddle is not available.

PART 3 - EXECUTION

3.01 GENERAL

- A. All work shall be performed and supervised by personnel experienced in the installation of the pipe by pipe bursting method as specified herein.
- B. Installation guidelines from the pipe supplier shall be followed for all installations.

- C. The Contractor shall protect facilities from damage by forces generated by the pipe bursting equipment. Adjacent utilities shall be identified by means of USA verification and/or potholing prior to work. The Contractor shall be responsible for repairing adjacent utilities damaged by the construction.

3.02 HIGH DENSITY POLYETHYLENE PIPE JOINING

- A. Sections of polyethylene pipe shall be joined into continuous lengths on the job site above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations and per Section 15066, **HIGH DENSITY POLYETHYLENE (HDPE) PIPE**.
- B. The inside weld bead shall be removed by cutting the bead away without scoring the inside wall of the pipe.

3.03 PIPE INSTALLATION

- A. Insertion/Receiving Pits: Insertion/receiving pits shall be prepared and backfilled in accordance with Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL** and the Standard Trench Section Detail. All pits shall be adequately shored and braced, to insure safe work areas in accordance with Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL** .
- B. When not indicated in the Contract Documents, the locations for the insertion/receiving pits are to be determined by the Contractor and approved by the City. In considering locations for insertion/receiving pits, the Contractor shall consider the size of the existing sewer and new pipe, locations of obstructions and services, locations of manholes, pulling distances, traffic conditions, and locations of utilities. Insertion pits shall have a maximum slope of 2.5:1 entry slope and shall be shaped to permit as long a radius in the new pipe as feasible. This radius shall not be less than 35 times the outside diameter at pipe. If existing manholes are destroyed or damaged while constructing the insertion/receiving pits, they shall be reconstructed and/or repaired at no cost to the City.
- C. The Contractor shall backfill all points where the new pipe has been exposed, such as insertion pits, outside of manholes, lateral connections, critical utility crossings, etc. The backfill material shall be compacted according to the surface restoration required as outlined in these Standard Specifications.
- D. The Contract shall excavate to provide air gaps at utility crossings for existing utilities with less than 2'-0" clearance to the outside diameter of the new sewer pipe. All loose soil shall be removed from the excavation prior to backfilling.
- E. The Contractor shall physically disconnect all laterals from the existing main prior to pipe bursting, as shown in the Standard Details.
- F. The pipe will be installed in a manner so the pipe curve radius is never less than the pipe manufacturer's recommended minimum bending radius.
- G. The Contractor shall install the pipe by utilizing static bursting or cone cracking methods. The use of hydraulic or pneumatic bursting devices must be approved by

the City. The void created by the bursting device shall be sufficient in size to accommodate the pipe which shall be installed immediately after the void has been formed.

- H. Where pipe is installed by pulling in tension, the recommended Safe Pulling Force, according to the pipe supplier, shall not be exceeded.
- I. The Contractor may utilize existing manholes where practical. Manhole inverts and bottoms shall be removed to permit access for installation equipment and the larger proposed pipe. Structural damage to manholes during pulling operations shall be repaired at no extra cost. Pipe bursting through a manhole shall not be allowed unless approved by the Engineer.
- J. The Contractor shall anchor the pipe to concrete structures or manholes after the pipe has been installed along the length of sewer replaced. The Contractor shall use a water stop or flange adapter, as supplied by the pipe manufacturer that is firmly seated perpendicular to the pipe axis, around the pipe exterior and cast into the structure base or near the structure wall center. The structure or manhole connection shall be made after adequate time has been allowed for the pipe to relax from the applied tension forces, as specified herein.
- K. Lateral Reconnection: The Contractor shall be responsible for disconnecting and reconnecting all live laterals to the main pipe. Capped/abandoned laterals shall not be reconnected to the new main.

3.04 STRESS AND STRAIN RELIEF OF HDPE PIPE AFTER PULLING OPERATIONS

- A. The Contractor shall allow the pipe to return to its original length and shape in the unstressed state prior to trimming the excess pipe in the manholes. The pipe manufacturer's recommendations shall be followed regarding the relief and normalization of stress and strain due to temporary stretching or elongation after pulling operations are completed. Contractor shall consider temperature and pulling time required when calculating required time for stress and strain relief. Time allowed for stress and strain relief shall be not less than 24 hours without a specific recommendation otherwise from the pipe manufacturer.
- B. The Contractor shall allow a minimum of six (6) hours to elapse after pipe bursting mainlines prior to connecting permanent lateral connections to the new main, in order to allow the pipe to relax from the applied tension forces. The Contractor shall provide temporary lateral connections and or bypassing as required to prevent overflows from side sewers.

3.05 PIPE TESTING

- A. All tests shall be completed and approved prior to placing of permanent resurfacing.
- B. Testing of pipe shall be in conformance with the Section 02737, **SANITARY SEWER SYSTEM TESTING**.
- C. After completion of construction of the pipeline and prior to final pavement restoration, the Contractor shall inspect all new pipelines for obstructions and shall clean all new

lines using the Wayne sewer ball method or other approved method. The Contractor shall inspect the new lines by television camera in accordance with Section 02736, **TELEVISION INSPECTION OF SANITARY SEWER SYSTEM** and submit logs and videos to the City. Television inspection shall be witnessed by the City or its appointed delegate.

1. Any lines showing unacceptable pipe construction such as offset joints >1/2" or deformed pipe shape (ovality >7% of pipe diameter) will be rejected and contractor will be required to repair those deficiencies at their own cost.
2. If it is determined by the City or its appointed delegate that there is a sag or hump in the installed piping after completion of pipe bursting and repair is required, then the Contractor shall repair the sag for the length directed by the City. The sag repair piping shall be performed in accordance with these Specifications.

PART 4 - 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 02513

HOT MIX ASPHALT PAVEMENT AND BASE

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall perform all work associated with asphalt concrete pavement and base repair as shown on the Standard Details and/or as specified herein. The Contractor shall provide all labor, materials, equipment, supplies, and facilities associated with providing a finished product satisfying all the requirements of the Contract Documents.
- B. All work specified herein shall conform to or exceed the requirements of the City of Pinole.
- C. All pavement areas that are not required to be repaved shall be protected by the Contractor. Such areas shall not be damaged in anyway and shall be fully restored to the pre-construction condition at the Contractor's expense. Pictures of the existing roadways shall be taken by the Contractor prior to work to document the pre-construction condition.

1.02 RELATED SECTIONS

- A. Section 01100, **MOBILIZATION AND DEMOBILIZATION**
- B. Section 02050, **DEMOLITION, ABANDONMENT, AND REMOVAL**
- C. Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**

1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. 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. The latest edition of the following references at the time of bid shall be used.

AASHTO M82	Cut-Back Asphalt (Medium Curing Type)
AASHTO M140	Emulsified Asphalt
AASHTO M208	Cationic Emulsified Asphalt
AASHTO M226	Viscosity Graded Asphalt Cement
AASHTO T209	Maximum Specified Gravity of Paving Mixtures
ASTM D242	Mineral Filler for Bituminous Paving Mixtures

ASTM D692	Coarse Aggregate for Bituminous Paving Mixtures
ASTM D977	Emulsified Asphalt
ASTM D1073	Fine Aggregate for Bituminous Paving Mixtures
ASTM D1188	Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Paraffin-Coated Specimens
ASTM D1557	Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in (457-mm) Drop
ASTM D2027	Cutback Asphalt (Medium Curing Type)
ASTM D2397	Cationic Emulsified Asphalt
ASTM D2726	Bulk Specific Gravity and Density of Compacted Bituminous Mixture Using Saturated Surface-Dry Specimens
ASTM D3381	Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D3515	Hot-Mixed, Hot-Laid Bituminous Paving Mixtures
ASTM D2922	Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods
Caltrans Standard Specification, Section 26	Aggregate Bases
Caltrans Standard Specification, Section 37	Bituminous Seals
Caltrans Standard Specification, Section 39	Hot mix asphalt
Caltrans Standard Specification, Section 92	Asphalts
Caltrans Standard Specification, Section 94	Asphaltic Emulsions
1.04	NOT USED
1.05	SUBMITTALS
A.	Submittals for items specified herein shall be submitted by the Contractor and shall be in accordance with the "Submittals" subsection of the Special Provisions. Submittals shall be provided to confirm that materials to be used comply with information specified herein.
B.	The Contractor shall submit, in writing, materials testing reports, job-mix formulas, and other pertinent information satisfactory to the City demonstrating that the materials

and methods that the Contractor proposes to utilize comply with the provisions of this Section.

- C. Suitability Tests of Proposed Materials. Tests for conformance with the Specifications shall be performed prior to start of the Work. The samples shall be identified to show the name of the material, aggregate source, name of the supplier, and the segment of the Work where the material represented by the sample is to be used. Results of all tests shall be submitted to the City for approval. Materials to be tested shall include aggregate base, aggregate subbase, coarse and fine aggregate for paving mixtures, mineral filler, asphalt cement, and asphalt emulsion.
- D. Certificate of Compliance of Proposed Materials. Certificate of Compliance with the specifications shall be provided prior to start of the Work. The Certificate of Compliance shall identify the name of the material, aggregate source, name of the supplier, contract number, and the segment of the Work where the material represented by the sample is to be used. Results of all tests shall be submitted to the City for approval. Materials to be tested shall include aggregate base, coarse and fine aggregate for paving mixtures, mineral filler, liquid asphalt, asphaltic emulsion, slurry seal mixture, and hot mix asphalt mixture properties in accordance with Caltrans Standard Specifications and theoretical maximum hot mix asphalt density in accordance with AASHTO T209. AC paving and slurry seal shall have final mix design approved by the appropriate agency prior to submittal to the Engineer for approval.
- E. Trial Batch. Before placing any paving material, a testing laboratory acceptable to the ENGINEER shall prepare a trial batch of hot mix asphalt for each job-mix formula to be used by the Contractor for the Work. The trial batch shall be prepared using the aggregates and asphalt cement proposed by the Contractor and approved by the ENGINEER. The compacted trial batch shall provide a basis for computing the voids ratio, provide an indication of the optimum asphalt content, and establish a basis for controlling compaction during construction. The cost of not more than 2 laboratory trial batch tests will be borne by the CITY, but the CONTRACTOR shall furnish the materials at no cost. Any additional trial batch testing required shall be performed at the expense of the Contractor.
- F. Load Slips. The Contractor shall submit batch data and load slips to the Engineer as asphalt is delivered to the project site to allow verification of location and use.
- G. Samples. The Contractor shall submit samples of all geotextile materials proposed to be used on the Work. The samples shall be clearly marked to show the manufacturer's name and product identification and shall be submitted along with the technical data and installation instructions.
- H. Certificates. The Contractor shall provide a certificate from the geotextile manufacturer stating conformance with the Contract Documents.
- I. Submittal shall also include a traffic control plan and a coordination plan for the pavement work. The coordination plan shall address staging issues that will provide minimum interference with use of street. Coordination submittal shall address all coordination issues of concern to the governing agencies. No paving shall start until the traffic control and coordination submittals are approved.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The Contractor shall furnish hot mix asphalt pavement and base in accordance with the requirements specified herein and these Specifications.
- B. Recycled materials meeting the requirements and gradations specified herein and Caltrans Standards may be submitted at the Contractor's option. If the City approves, the Contractor shall pass cost-savings to City. Up to 25 percent recycled asphalt pavement (RAP) may be used at the Contractor's option.

2.02 AGGREGATE BASE

- A. Materials for aggregate base shall be Class 2 aggregate base material as specified in Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**.

2.03 TACK COAT

- A. Tack coat shall be of the penetration type asphalt emulsion grade RS-1, furnished and applied in conformance with the provisions of Section 94, Asphaltic Emulsions, of the Caltrans Standard Specifications.

2.04 ASPHALT BINDER/CEMENT

- A. Asphalt binder to be mixed with the mineral aggregate shall be steam-refined paving asphalt Type PG 64-10 conforming to Section 92 of the Standard Specifications. Asphalt binder for temporary paving shall consist of liquid asphalt grade MC-800 conforming to Section 93 of the Standard Specifications.

2.05 HOT MIX ASPHALT

- A. Hot mix asphalt shall conform to the requirements of Section 39 of the Caltrans Standard Specifications.
 - 1. Aggregate for HMA base course (lifts of asphalt placed prior to or below the final lift) shall be 3/4 -inch gradation, Type B.
 - 2. Aggregate for HMA surface course (the final lift placed for a given area) shall be 1/2-inch gradation, Type B.
 - 3. The hot mix asphalt mixture, composed of the aggregate proposed for use and the optimum amount of asphalt as determined by California Test 367, shall conform to the following quality requirements:

Quality Characteristic	Test Method	Value (HMA Type B)
Air Void Content (%)	California Test 367	4.0
Voids in Mineral Aggregate	California Test 367	

1/2" grading		14.0
3/4" grading		13.0
Voids filled with asphalt (%)	California Test 367	
1/2" grading		65.0-75.0
3/4" grading		65.0-75.0
Dust Proportion	California Test 367	0.6-1.3
Stabilometer value (min.) ^a	California Test 366	35

2.06 PAVEMENT MARKINGS, STRIPES, PAVEMENT MARKERS AND CURB PAINTING

- A. Stripes and pavement marking replacement shall be thermoplastic material in accordance with Caltrans Standard Specifications, Section 84.
- B. Pavement marker replacement shall be in accordance with Caltrans Standard Specifications, Section 85.
- C. Paint for replaced curbs, where required for fire lanes, no parking zones, and other similar markings shall match existing color and be in accordance with Caltrans Standard Specifications, Section 59-6.
- D. Pavement lane delineators shall match existing and shall be in accordance with Caltrans Standard Specifications requirements.

PART 3 - EXECUTION

3.01 GENERAL

- A. Where pavement restoration is required due to trenching, the road section shall be restored to the previous as-built section. In no case shall the section be less than in shown on the City Standard Details.
- B. Existing curbs and sidewalks being demolished shall be replaced to match the existing curb and sidewalk and in conformance with City Standard Details.
- C. Adjustment of Iron. Valve boxes, survey monument boxes, manholes, cleanouts, and blowouts shall be brought to finished grade after the final pavement lift has been installed.
- D. Failed pavement adjacent to the trench shall be removed and replaced by the Contractor. Any pavement damaged by the Contractor shall be removed and replaced by the Contractor.
- E. Removal operations shall be performed without damage to any portion of the existing pavement, curb, gutter, or sidewalk that is to remain in place. All damage to the existing surfaces to remain in place shall be repaired to a condition equal to the

existing condition prior to the beginning of removal operations. The cost of repairing existing concrete or asphalt concrete pavement damaged by the Contractor's operations shall be at his expense.

- F. Contractor shall furnish and use canvas tarpaulins to cover all loads of asphalt concrete from the time that the mixture is loaded until it is discharged from the delivery vehicle, unless otherwise directed in writing by the City.

3.02 SUBGRADE PREPARATION

- A. The subgrade shall be prepared as specified in Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**. The surface of the subgrade after compaction shall be hard, uniform, smooth, and true to grade and cross-section. Subgrade for pavement shall not vary more than 0.02 feet from the specified grade and cross section. Subgrade for base material shall not vary more than 0.04 feet from the specified grade and cross section.

3.03 AGGREGATE BASE

- A. Where required, the aggregate base section shall be restored to the previous as-built section. In no case shall the section be less than shown on the City Standard Details.
- B. Imported aggregate bases shall be delivered to the job site as uniform mixtures and each layer shall be spread in one operation. Segregation shall be avoided and the bases shall be free of pockets of coarse or fine material. Where the required thickness is 6 inches or less, the base materials may be spread and compacted in one layer each.
- C. The relative compaction of each layer of aggregate base and subbase shall be not less than 95 percent of maximum density. Placement of aggregate base shall be in lifts no greater than 6-inches. The compacted surface of the finished aggregate shall be hard, uniform, smooth, and at any point shall not vary less than the minimum specified cross section.

3.04 REMOVAL OF PAVEMENT

- A. Removal of existing pavement shall comply with Section 02050, **DEMOLITION, ABANDONMENT, AND REMOVAL**.

3.05 PAVEMENT PREPARATION

- A. The Contractor shall clean the surface by sweeping, blowing or other means to remove all loose particles of paving, all dirt and all other extraneous material immediately before applying the tack coat.

3.06 TACK COAT

- A. A tack coat shall be applied to existing paved surfaces where new hot mix asphalt is to be placed on or against existing pavement. It shall also be applied to the contact surfaces of all cold pavement joints, curbs, gutters, manholes, and the like immediately before the adjoining asphalt pavement is placed. Care shall be taken to

prevent the application of tack coat material to surfaces that will not be in contact with the new asphalt pavement. Tack coat shall be applied at the rate of approximately 0.10 gallons per square yard.

- B. No traffic shall be allowed on the tack coat with the exception of vehicles unloading hot mix asphalt. All vehicles involved with the Contractor's operations shall turn around within the roadway right-of-way. Driveways and other private property shall not be used without prior written consent of the involved owner, a dated copy of which must be delivered to the Engineer prior to the use thereof.

3.07 HOT MIX ASPHALT

- A. The Contractor shall install all concrete, steel, piping, backfill, and bedding before placing hot mix asphalt.
- B. Hot Mix asphalt shall not be placed on any surface that contains ponded water or excessive moisture in the opinion of the Engineer.
- C. New hot mix asphalt for pavement repairs shall be placed in two lifts unless otherwise directed by the City.
- D. The Contractor shall notify the City before the paving has begun. At the time of delivery to the Work site, the temperature of mixture shall not be lower than 280 degrees F nor higher than 320 degrees F, the lower limit to be approached in warm weather and the higher in cold weather.
- E. Hot mix asphalt shall not be placed when the atmospheric temperature is below 50 degrees F or during unsuitable weather, including rain or fog. Should unsuitable weather conditions develop during paving operations and force a shut down, loaded trucks in transit shall return to the plant and no additional compensation will be allowed.
- F. All trimming of the surface, prior to placing the final lift, shall be completed while the temperature of the mix is above 200 °F.
- G. Hot mix asphalt shall be evenly spread upon the base to such a depth that, after rolling, it will be of the minimum specified cross section and grade of the course being constructed. All spreading and compacting shall be in conformance with Section 39 of the Standard Specifications. Loaders (pick-up machines) shall not be used.
- H. The depositing, distributing, and spreading of the hot mx asphalt concrete shall be accomplished in a single, continuous operation by means of a self-propelled mechanical spreading and finishing machine designed especially for that purpose. The machine shall be equipped with a screed or strike-off assembly capable of being accurately regulated and adjusted to distribute a layer of the material to a definite predetermined thickness. When paving is of a size or in a location that use of a self-propelled machine is impractical, the ENGINEER may waive the self-propelled requirement.
- I. Spreading, once commenced, must be continued without interruption.

- J. Hot mix asphalt, when required to be distributed by hand, shall be placed using a shovel into a mass of asphalt, the hot mix asphalt shall not be broadcast or scattered resulting in segregation.
- K. The mix shall be compacted immediately after placing. Initial rolling with a steel-wheeled tandem roller, steel three-wheeled roller, vibratory roller, or a pneumatic-tired roller shall follow the paver as closely as possible. If needed, intermediate rolling with a pneumatic-tired roller shall be done immediately behind the initial rolling. Final rolling shall eliminate marks from previous rolling. In areas too small for the roller a vibrating plate compactor or a hand tamper shall be used to achieve thorough compaction.
- L. Pneumatic-tired rollers shall be used during compaction of all surface courses of hot mix asphalt. Compaction with steel drum, vibratory rollers in lieu of pneumatic-tired rollers is not acceptable.
- M. The relative density after compaction shall be 95 percent of the density obtained by using ASTM D1188 or D2726. A properly calibrated nuclear asphalt testing device shall be used for determining the field density of compacted asphalt concrete, or slabs or cores may be laboratory tested in accordance with ASTM D1188. A minimum of one compaction test per day shall be provided and an additional compaction test for each 500 square feet completed. If the test results for any lot of hot mix asphalt indicate that the relative compaction is less than 95.0%, the asphalt represented by that lot shall be removed and replaced at Contractor's expense. Hot mix asphalt spreading operations shall not continue until the Contractor makes significant adjustments to his/her materials, procedures or both in order to meet the required compaction. The adjustments shall be as agreed to by the Engineer.
- N. Upon completion, the pavement shall be true to grade and cross-section. When a 10 foot straightedge is laid on the finished surface parallel to the center of the roadway, the surface shall not vary from the edge of the straightedge more than 1/8 inch, except at intersections or changes of grade. In the transverse direction, the surface shall not vary from the edge of the straightedge more than 1/4 inch.
- O. Upon completion, slope of street draining to the gutter shall match existing.
- P. The finished grade of hot mix asphalt at the lip of the gutter shall be 1/4-inch above the concrete.

3.08 PROTECTION OF STRUCTURES

- A. Provide whatever protective coverings may be necessary to protect the exposed portions of buildings, curbs, posts, guard fences, equipment pads, and any other structures from splashing oil and hot mix asphalt from the paving undesirable matter that may come upon these structures by reason of the paving operations.

3.09 CONTRACTOR'S RESPONSIBILITY

- A. Settlement of replaced pavement over trenches within the warranty period shall be considered the result of improper or inadequate compaction of the subbase or base materials. The Contractor shall promptly repair all pavement deficiencies noted during the warranty period at the Contractor's sole expense.

3.10 TEMPORARY PAVING

- A. The same day the trench is backfilled, it will be graded to conform to the existing surface and temporary pavement consisting of a minimum of 2 inches of premixed asphaltic paving material will be placed over the trench. Temporary pavement shall be maintained in a safe and drivable condition until permanent paving is placed.
- B. Temporary pavement shall be removed and permanent pavement shall be installed within 10 calendar days after excavation unless otherwise specified by the City. The permanent pavement shall be maintained to the satisfaction of the Engineer for the full guarantee period or until relief from maintenance is obtained in writing from the City.

PART 4 - 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*****

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 02600

SIDE SEWERS

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all pipe, fittings, tools, materials and labor required to install and test sanitary side sewers/laterals, in accordance with the requirements of the Project Contract Documents and these Standard Specifications.
- B. Side sewers shall conform to Central Contra Costa Sanitary District Standard Detail 22-01 and 22-07.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01350, **BYPASS PUMPING**
- B. Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**
- C. Section 02345, **PIPE BURSTING**
- D. Section 02513, **HOT MIX ASPHALT PAVEMENT AND BASE**
- E. Section 02735, **CLEANING OF GRAVITY SEWERS**
- F. Section 15050, **GENERAL PIPING**
- G. Section 15064, **POLYVINYL CHLORIDE (PVC) PIPE**
- H. Section 15066, **HIGH-DENSITY POLYETHYLENE (HDPE) PIPE**

1.03 SUBMITTALS

- A. Submittals for items specified herein shall be submitted by the Contractor to the City for confirmation that materials to be used comply with information specified herein.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All side sewers materials shall be new, free from defects, and marked to identify manufacturer, material, class and other appropriate information.
- B. Side sewer pipe material, fittings, couplings, appurtenances and other components used for side sewer construction or repair shall be as specified herein.

2.02 SIDE SEWER PIPING

- A. For open trench installations, side sewer pipe material shall be:
1. PVC Solid Wall C900 with bell and spigot joints, DR-18 minimum wall thickness in accordance with Section 15064, **POLYVINYL CHLORIDE (PVC) PIPE**, unless otherwise specified.
 2. Exceptions:
 - a. Where cover to finished grade is less than 3 ft, where required at utility crossings, where approved by the City, pipe material shall be ductile iron pipe.
 - b. Where approved by the City, HDPE in accordance with Section 15066, **HIGH DENSITY POLYETHYLENE (HDPE) PIPE** may be used. HDPE shall be SDR 17 (Ductile Iron Pipe O.D.), green or gray color, with butt thermal fused joints.
- B. For laterals to be rehabilitated by pipe bursting method in accordance with Section 02345, **PIPE BURSTING**, side sewer pipe material shall be:
1. HDPE in accordance with Section 15066, **HIGH DENSITY POLYETHYLENE (HDPE) PIPE**. DR 17, gray color with butt thermal fused joints.

2.03 WARNING TAPE

- A. Warning tape shall be three (3) inch wide green plastic electronically detectable marking tape labeled "Buried Sewer Line Below," and installed above the pipe zone, as defined in Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**.
- B. Warning tape shall be installed above all side sewers.

2.04 CLEANOUTS

- A. Cleanouts installed on service laterals shall be two-way.
- B. Two-way cleanout tees shall consist of a Schedule 40 PVC two-way tee with gaskets joints compatible with C900 PVC solvent welded to its three ends. All solvent welding and fitting fabrication shall be by the fitting manufacturer. The two-way cleanout shall be reinforced with fiberglass tape.
1. Two way cleanouts shall be fabricated by Specified Fittings, or approved equal.

2.05 CLEANOUT BOX COVERS

- A. Utility box covers for all service lateral cleanouts shall be precast concrete rectangular boxes manufactured by Christy, model B09 or approved equal.

- B. Boxes shall be provided with a precast concrete lid marked "SEWER".

2.06 BACKWATER PROTECTION DEVICES (BPDS)

- A. A backwater protection device shall be required on all service lateral cleanouts.
- B. Sewer Popper (Type 2) Backwater Protection Devices shall be manufactured by Jones Stephens Corporation, Model Sewer Popper S62-304, or equal. Sewer poppers shall meet the following requirements:
 - 1. Automatic pop-up release to release sewage overflow outside the building
 - 2. Vandal- and tamper-resistant center
 - 3. Threaded for minimum 4" riser pipe
 - 4. Constructed of PVC
 - 5. Conforms to ASTM Standard D-2665

PART 3 - EXECUTION

3.01 GENERAL

- A. Side sewers (laterals and building sewers) shall be installed in accordance with the requirements of Section 15050, **GENERAL PIPING**, Central Contra Costa Sanitary District Standard Drawings No 22-01 through 22-07, and the specific section of these Specifications for the particular pipe material being used.
- B. Excavation and backfill shall be in accordance with the requirements of Section 02200, **TRENCHING, EXCAVATION, SHORING AND BRACING** and the Central Contra Costa Sanitary District Standard Detail 20-01.
- C. Minimum slope:
 - 1. Minimum slope shall be two percent (2%) for four (4) inch diameter sewer pipe.
 - 2. Minimum slope shall be one and one-tenth percent (1.1%) for six (6) inch sewer pipe.
 - 3. The slope of any portion of a side sewer shall not be less than one and one-tenth percent (1.1%) or greater than one hundred and fifty percent (150%).
 - 4. Wherever available slope is less than two percent (2%) or the length of the side sewer is greater than one hundred (100) feet, the side sewer shall be installed using an industrial-standard laser grade control system to confirm that the pipe is installed to the proper grade.
- D. Minimum cover:

1. Side sewers shall have a minimum cover to finished grade of two (2) feet.
 2. City approval will be required for any side sewer that cannot meet the minimum cover requirements. Ductile iron piping will be required for side sewers that cannot meet the minimum cover requirement, unless otherwise approved by the City.
- E. To mark the location of side sewers, electronically detectable marking tape shall be installed from the main sewer end of each side sewer to the connected building.
- F. When performing work on side sewers, the Contractor shall bypass wastewater around the work area in accordance with the requirements of Section 01350, **BYPASS PUMPING**, or shall arrange with the Property Owner to temporarily shut down the side sewer. The Contractor shall ensure that no wastewater is discharged from side sewer to the excavation.
- G. Performing any work or repairs on side sewers will require a permit from City.

3.02 LATERAL SEWER LOCATION

- A. Where curbs, gutters and/or sidewalks exist or are to be a part of an improvement, the location of each lateral sewer shall be permanently marked by imprinting an "S" (2" size) or by chiseling an "S" (4" size) in the concrete surface vertically above the lateral sewer pipe. The "S" shall be marked on the curb, gutter or on the sidewalk. It shall be the Contractor's responsibility for providing the marking and for its accuracy.

3.03 TAP CONNECTIONS TO MAINS

- A. Only pre-qualified contractors shall be permitted to install tap and saddle connections.
- B. Taps into mains shall not be allowed in pipes less than 10" in diameter.
- C. Hammer taps shall not be allowed in any pipes.
- D. Before commencing excavation for tap installation, the Contractor shall have sufficient backfill material at the site to properly re-bed the main and side sewers, and backfill the excavation.
- E. The outer surface of the main in this exposed area shall be thoroughly cleaned prior to tapping.
- F. The excavation for the tapping work shall be a minimum of two (2) feet in width, give enough length for work space, without under-cut sides and shall be properly shored in conformance with 02200, **TRENCHING, EXCAVATION, SHORING AND BRACING**. A minimum clearance of three (3) inches below, six (6) inches on each side and twelve (12) inches each way along the main from the point of connection shall be provided for tap installation.

- G. If the main sewer is damaged during excavation for or during installation of the tap, the Contractor shall install a main sewer repair spool (replacement pipe section) as specified herein, including a new wye branch fitting.
- H. Use of tap fitting connection requires prior City approval.

3.04 CLEANOUT INSTALLATION

- A. Cleanouts shall be installed at the property line or public right of way line, or where Directed by the City or its Representative.

3.05 LANDSCAPE RESTORATION

- A. The Contractor shall restore the area affected by its side sewer installation operations in kind and accordance with the requirements of Section 02050, **DEMOLITION, ABANDONMENT AND REMOVAL**, and the Project Contract Documents.

3.06 TESTING AND TELEVISION

- A. New side sewers and/or side sewer repairs shall be inspected in accordance with Section 02736, **TELEVISION INSPECTION OF SANITARY SEWER SYSTEM**.
- B. New side sewers and/or side sewer repairs shall be tested with a low-pressure air or hydrostatic pressure test in accordance with Section 02737, **SANITARY SEWER SYSTEM TESTING**.

PART 4 - 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.

The Contract Unit Price paid for **Lateral Reconnection** shall be paid per each live sanitary sewer lateral reconnected to the new sewer main and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved including miscellaneous metals, reinforcing, utility locating and potholing, excavation, dewatering, bypass pumping, backfill material and compacting according to the requirements for backfilling against structures, making lateral connections from new sewer main to connection with existing sewer lateral at the trench wall, extending/shorting lateral to relocated sewer main, removal and replacement of AC/PCC pavement including sidewalk/curb & gutter, and all other incidentals required to reconnection the existing live lateral complete in place as shown on the Plans, as specified and as directed by the Engineer

The Contract Unit Price paid for **Remove and Replace New 4" SS Lower Lateral by Open Trench with New 4" SS PVC Pipe** shall be paid per the linear foot installed by open trench. The length shall be measured from the sewer main trench wall to the property line and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved including new pipe materials, fittings and appurtenances, all site clearing/preparation, locating and verifying laterals, potholing and protecting existing utilities, bypass pumping, removal and replacement of AC/PCC pavement or sidewalk/curb & gutter,

removal of existing concrete slurry backfill, excavation, dewatering, tracer wire, geotextile fabrics, disposal of waste materials, couplings, tie-in to existing pipes, cleanup, pre- and post-video inspection, testing of new pipe, aggregate base, landscaping to match pre-existing conditions, and all other incidentals required to construct the pipe system complete in place as shown on the Plans, as specified and as directed by the Engineer. This Bid Item is revocable if no lower lateral replacement by open trench is required.

The Contract Unit Price paid for **Remove and Replace New 4" SS Upper Lateral by in Landscaped Area Open Trench with New 4" SS PVC Pipe**" shall be paid per the linear foot installed by open trench. The length shall be measured from the property line to the building cleanout or connection and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved including new pipe materials, fittings and appurtenances, all site clearing/preparation, locating and verifying laterals, potholing and protecting existing utilities, bypass pumping, removal and replacement of landscape removal and replacement to match pre-construction condition, removal of existing concrete slurry backfill, excavation, dewatering, tracer wire, geotextile fabrics, disposal of waste materials, couplings, tie-in to existing pipes, cleanup, pre- and post-video inspection, testing of new pipe, aggregate base, landscaping to match pre-existing conditions, and all other incidentals required to construct the pipe system complete in place as shown on the Plans, as specified and as directed by the Engineer. This Bid Item is revocable if no upper lateral replacement in landscaped area by open trench is required.

The Contract Unit Price paid for **Remove and Replace New 4" SS Upper Lateral in Concrete or Other Hardscaped Area by Open Trench with New 4" SS PVC Pipe**" shall be paid per the linear foot installed by open trench. The length shall be measured from the property line to the building cleanout or connection and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved including new pipe materials, fittings and appurtenances, all site clearing/preparation, locating and verifying laterals, potholing and protecting existing utilities, bypass pumping, removal and replacement of landscape removal and replacement to match pre-construction condition, removal of existing concrete slurry backfill, excavation, dewatering, tracer wire, geotextile fabrics, disposal of waste materials, couplings, tie-in to existing pipes, cleanup, pre- and post-video inspection, testing of new pipe, aggregate base, all temporary pavement restoration, concrete or other hardscape removal and replacement, and all other incidentals required to construct the pipe system complete in place as shown on the Plans, as specified and as directed by the Engineer. This Bid Item is revocable if no upper lateral replacement in concrete or other hardscaped area by open trench is required.

The Contract Unit Price paid for **Pipe Burst Ex 4" SS Lateral with New 4" SS** shall be paid per the lineal foot installed by pipe bursting and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved including pipe, fusion of pipe, utility locating and potholing, providing air gaps, structure excavation, structural backfill, CLSM, all trench dewatering, all bypass pumping of sewage, reshaping of existing manhole base, connections to existing manholes, backfill material and compaction testing, all AC/PCC pavement or sidewalk/curb & gutter restoration, including removal and of PCC, pavement striping, pipe testing, pre- and post-video inspection, landscaping to match pre-existing conditions, and all other incidentals required to construct the pipe system complete in place as shown on the Plans, as specified and as directed by the Engineer. This Bid Item is revocable if no lateral replacement by open trench is not required.

*****END OF SECTION*****

SECTION 02701

MANHOLE AND CLEANOUT CONSTRUCTION

PART 1 - GENERAL

1.01 GENERAL

- A. Manholes shall conform to the provisions of ASTM C478 and Central Contra Costa Sanitary District Standard Detail 19-02, 19-08 and 19-10. The base diameter shall be a minimum of 60" ID.
- B. Cleanouts shall conform to Section 02600, **SIDE SEWERS** of these specifications.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Manhole and cleanout frame and covers shall be designed to support an AASHTO H20 live load.
- B. After excavation is completed, a cast-in-place foundation shall be constructed as shown on the reference drawings. Concrete used for the foundation shall comply with Section 03300, **CAST IN PLACE CONCRETE**. The foundation shall have a depth equal to 6 inches under the bottom of the lowest pipe in the foundation. The manhole base foundation invert channels shall be shaped and troweled smooth, with transitions of line and grade from one pipe to another. The channels shall conform to and be of width equal to the inside diameter of the pipes. The top of the foundation, from inside face of manhole, shall be shaped to slope towards the channels at the rate of one inch per foot minimum.
- C. The precast concrete portion of the manholes shall consist of cylindrical barrel sections, cone sections, a top cover slab, and grade rings as required. The shaft sections shall fit together readily and all jointing and connections shall be joined with rubber gaskets or mastic joint fillers. The rubber ring gaskets shall be installed so as to form a flexible watertight seal. The mastic joint filler shall be applied in accordance with the manufacturer's recommendations so as to achieve a watertight seal. The shaft sections shall be installed plumb and aligned. The shaft sections shall be combined in such a manner that the maximum height of the throat or neck is no more than 12 inches to finished grade, including the thickness of the manhole casting.
- D. All plastic pipe connections to manholes shall have a rubber waterstop tightly banded to the pipe and cast into the manhole base. Banding material shall be stainless steel or other corrosion resistant material.
- E. Mortar shall be standard premixed mortar conforming to ASTM C-387 or proportion 1 part Portland cement to 2 parts clean, well-graded sand which will pass a 1/8-inch screen. Admixtures may be used not exceeding the following percentages of

weight of cement: hydrated lime, 10 percent; diatomaceous earth or other inert materials, 5 percent.

- F. The manhole cover frame casting shall be centered on the manhole neck and set on a layer of mortar. The mortar shall be neatly struck. A concrete collar shall be formed and poured around the cleanout neck as shown on Central Contra Costa Sanitary District Standard Detail 19-02. The concrete mixture for the collar shall contain lamp black coloring. The amount of lamp black to be added to the mixture will be specified by the Engineer.
- G. At sites which are to be paved with asphalt concrete, the manhole or cleanout frame casting and collar shall not be installed until the final paving lift is placed. After the pavement has been completed, the necessary portions of the structural section of the roadway shall be neatly removed, the structure built-up, and the manhole or cleanout frame set to be backfilled to within 2 inches of the surface with portland cement concrete. The remaining 2 inches will be filled with an asphalt concrete wearing surface mixture to match the pavement surface. This material shall be placed and compacted in a workmanlike manner to conform to the appearance of the surrounding pavement.
- H. Manhole covers and frames shall conform to Central Contra Costa Sanitary District Standard Detail 19-02 and 19-08 and these special provisions. Covers and frames shall be 26-inch inside diameter opening. Castings shall be tough, close-grained gray iron, free from all defects, and shall conform to ASTM A 48, Class 30B. Plane or grind bearing surfaces to ensure flat, true surfaces. Covers shall be true and seat within ring at all points.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Backfill around manholes and cleanouts conform to Central Contra Costa Sanitary District Standard Detail 20-01.
- B. Water in the excavation must be removed. Place a minimum of 6 inches of base rock material and thoroughly compact with a mechanical vibrating or power tamper.
- C. Construct concrete base in conformance with the Standard Details. Vibrate to density the concrete and screed so that the joint for the first precast manhole section can be formed level and uniform for the full circumference.
- D. Carefully inspect precast manhole sections to be joined. Sections with chips or cracks in the tongue shall not be used. Perform plastic gaskets shall be installed in strict conformance with the manufacturer's recommendations. Only pipe primer furnished by the gasket manufacturer will be approved. As part of the concrete base, construct manhole inverts in conformance with details shown on the Plans, and with smooth transitions to ensure an unobstructed flow through manhole. Remove all sharp edges or rough sections which tend to obstruct flow. Where a full section of pipe is laid through a manhole, break out the top section as

indicated and cover exposed edge of pipe completely with mortar. Trowel all mortar surfaces smooth.

- E. Install extensions in conformance with the Standard Details and to the height determined by Engineer. Lay grade rings in mortar with sides plumb and tops level. Seal joints with mortar. Extensions shall be watertight.
- F. Install frames and covers on top of manholes in conformance with the Standard Details. Frames shall be set in a bed of mortar with the mortar carried over the flange of the ring. Set frames so tops of covers are flush with surface of adjoining pavement or ground surface, unless otherwise shown or directed.
- G. Prior to backfilling, manholes shall be vacuum tested in the presence of the Project Engineer in accordance with ASTM C1244.
- H. Repair all manholes that do not meet the vacuum test, or are unsatisfactory from visual inspection. Manholes shall be watertight to infiltration, and any leakage of groundwater shall be eliminated by permanent repairs.

PART 4 - PAYMENT

The Contract Unit Price paid **Remove and Replace Existing SSMH with New SSMH** shall be paid per manhole installed and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved including precast manhole sections, base section concrete, drop connections, miscellaneous metals, reinforcing, utility locating and potholing, excavation, dewatering, bypass pumping, backfill material and compacting according to the requirements for backfilling against structures, making pipe connections, verifying if laterals connected to manholes are live or abandoned, gasket, waterproofing, removal and disposal of existing sanitary sewer cleanout/manhole, removal and replacement of AC/PCC pavement including sidewalk/curb & gutter, vacuum/leakage testing, and all other incidentals required to construct the manhole complete in place as shown on the Plans, as specified and as directed by the Engineer

The Contract Unit Price paid for **Remove and Replace or Install New SSCO at Property Line** shall be paid per each sanitary sewer cleanout installed and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved including miscellaneous metals, reinforcing, utility locating and potholing, excavation, dewatering, bypass pumping, backfill material and compacting according to the requirements for backfilling against structures, making pipe connections, removal and disposal of existing sanitary sewer cleanout, removal and replacement of AC/PCC pavement including sidewalk/curb & gutter, and all other incidentals required to construct the sanitary sewer cleanout complete in place as shown on the Plans, as specified and as directed by the Engineer. This item is revocable if SSCO replacement or new installation is not needed.

**** END OF SECTION ****

THIS PAGE LEFT BLANK INTENTIONALLY

SECTION 02735

CLEANING OF GRAVITY SEWERS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall clean sewer pipelines prior to CCTV inspection to ensure that CCTV equipment can pass the entire pipe segment without obstruction and with a clear view of the pipe. The work includes hydraulic root cutting and cleaning, removal of deposits, and grinding protruding break-in service connections.
- B. Cleaning (Each Segment)
 - 1. The Contractor shall clean the sewer and associated manholes, including drop connections and benches, to remove all obstructions including but not limited to Deposits Settled (DS), and Obstructions (OB), Deposits Attached Grease (DAGS), Root Balls Medium and Ball (RM and RB) so that the sewer is ready for televising. This will require an unlimited amount of passes of a hydraulic flusher and/or high velocity hydro-cleaning equipment to remove all loose debris and collect it for removal in the downstream manhole. A mechanical/hydraulic Spinner Nozzle may be used where necessary at no additional cost to the City; however, the Contractor shall be responsible for any damage to the sewer or any service connections. All debris must be removed from the sewer, including any debris that may have been washed up into any service connections (does not include known pre-existing conditions in service connections), drop connections or the bench wall of the manholes.
 - 2. The Contractor shall note that some existing sewer lines may require removal of Deposits Attached Encrustation (DAE). A mechanical/hydraulic root, chain cutter, etc. may be used where necessary at no additional cost to the City; however, the Contractor shall be responsible for any damage to the sewer or any service connections. Substantial effort towards cleaning, chipping, cutting, grinding, etc. to remove hardened deposits may be required.
 - a. The Contractor shall immediately notify the Owner if he believes that activities performed under this paragraph will cause damage due to the existing deterioration of the host pipe. The Owner's determination whether to continue or stop work is final.
 - b. The Contractor shall maintain detailed documentation of cleaning efforts made to remove these items.
 - c. If attached deposits cannot be removed by tools normally used in the industry, the Owner should be consulted immediately. The Owner and the Contractor should discuss whether to cancel the work on that segmentation or negotiate a flat rate or hourly rate for the Contractor to do the work.

C. Lateral Cuts

1. The Contractor shall grind break-in service connections when they obstruct the CCTV equipment . The Contractor shall cut/grind the protruding service connection by using a remote grinding/cutting device capable of removing, concrete, vitrified clay, PVC and other types of pipe material. The device shall be specifically designed to cut/grind protruding service connections. The Contractor shall use remote CCTV equipment to monitor the progress of the work and ensure that the service connection is not damaged.
2. The protruding break-in service connection shall be cut/ground flush to the main sewer pipe without scouring or damaging the main sewer or service connection. All cuttings must be screened, collected, and removed from the sewer for proper disposal.
3. The Contractor shall immediately notify the Owner if he believes that the pipe is not structurally sound. The Contractor and Owner shall discuss the severity and risk of cutting/grinding the lateral. The Owner shall then determine, if they want the lateral cut/ground, at the Owners risk, or if the work should not be performed on this contract.
4. If other than typical lateral materials are encountered, the Contractor shall notify the Owner and the Owner and Contractor should discuss the ability, costs and risks associated with cutting/grinding the lateral. The Owner shall decide, whether to cut/grind the lateral or to not cut/grind the lateral. If the Owner decides to cut/grind the lateral, the price should be negotiated between the Owner and Contractor, prior to cutting/grinding the lateral.

1.02 PRE-QUALIFICATIONS

- A. The successful low bidder must have an onsite field supervisor with a minimum five (5) years of experience specializing in the cleaning and televising of sewers. A foreman for each crew performing cleaning and television inspection with a minimum of five years of experience specializing in that type of work may be substituted for the onsite field supervisor requirement. The Contractor shall provide the names, titles, phone numbers and addresses of a minimum of two references that can be used to verify this experience. The references must be contract managers or persons of authority over cleaning and televising work performed by the Contractor.
1. The Contractor shall also provide 5 similar projects with cleaning and inspection equipment as proposed for this project.
 2. The Contractor must have foreman or supervisors meeting all pre-qualifications for the duration of the contract.

PART 2 - NOT USED

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall furnish and maintain, in good condition, all cleaning and televising equipment necessary for proper execution of the work.
- B. Retrieval of Materials and Equipment: It shall be the Contractor's responsibility to remove materials and equipment that has been lodged in the sewer from cleaning, television inspection, or point repair excavations.

3.02 SEWER CLEANING AND GRINDING OF SERVICE CONNECTIONS

- A. The Contractor shall provide equipment that is specifically designed and constructed for sewer cleaning. Solids and debris resulting from the cleaning operation shall be collected and removed from the downstream manhole and disposed of at a site selected by the Owner and approved by appropriate jurisdictional personnel. Under no circumstances shall sewage solids be dumped onto the surface, street, or into ditches, inlets, or storm drains.
- B. Prior to conducting closed circuit television inspection it shall be the responsibility of the Contractor to plug and monitor or bypass sewer flows around the work and to thoroughly clean the host pipe. The word 'clean' in this specification is defined as the removal of all accumulations including sludge, dirt, sand, rocks, asphalt, concrete, grease, roots, and any other solid or semisolid material in the pipe down to the parent material with 100 percent debris removal.
- C. It will be the Contractor's responsibility to make as many cleaning passes as necessary to meet the above definition of "clean". Acceptance of the cleaning, as determined by the Construction Manager, shall be based upon the subsequent video inspection of the sewer and the lining manufacturer's cleaning requirements.
- D. Tree and plant roots shall be removed from within the sewers. Special attention should be used during the cleaning operation to assure removal of roots from the joints and laterals. Procedures may include the use of mechanical equipment such as rodding machines, root cutters, porcupines, and high-velocity jet cleaners.
- E. Water Usage: The Contractor is responsible for obtaining construction/fire hydrant meters from the California Water Service Co. and for paying all applicable deposit fees and water usage fees.
- F. The Contractor shall use the manufacturer's recommended size tools for the various size pipes. Equipment recommended by the manufacturer to protect the manhole and pipe, such as pull-in slant jack rollers and roller and yoke assembly, roller manhole jacks, etc. shall be utilized.
- G. Removal and Disposal of Material:
 - 1. Sludge, dirt, sand, rocks, grease, and other solids or semi-solid material resulting from the cleaning operation shall be removed at the downstream

- manhole of the section being cleaned. Passing materials to downstream sewer reaches is not permitted.
2. Trucks hauling solids or semi-solids from the site shall be watertight so that no leakage or spillage will occur. Under no circumstances shall sewage or solids be dumped onto the ground surface, streets, in the sewer system, catch basins, or within storm drains.
 3. All debris and containers shall be removed from the right-of-way at the end of each work day. The Contractor shall coordinate with the City prior to each delivery at the landfill. Acceptable material at the landfill includes grit and grease. The City will be responsible for paying all disposal costs of acceptable material. Non-sewer material such as broken pipe, dirt, liner trimmings, etc. will not be accepted by the landfill. Contractor shall make his own arrangements to legally dispose these items at his own expense.
 4. It is the Contractor's responsibility to determine the quantity of debris and solids to be removed during cleaning. Video recordings of a previous sewer inspection will be made available for the Contractor to examine. The tapes are for information only and the City does not guarantee the accuracy of the information provided.
- H. The Contractor is required to submit documentation of the work that is performed and the type of debris removed, as well as landfill permits and disposal documentation.
- I. The Contractor shall have a CCTV camera in the sewer, during all cleaning operations to include: Lateral Cut and Deposit Cut. The camera shall be used for the Contractor's verification that the cleaning equipment is not damaging the public sewer.

PART 4 - 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 02736

TELEVISION INSPECTION OF SANITARY SEWER SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This specification covers CCTV inspection of sewer mains. CCTV inspection shall be performed both prior to rehabilitation and upon completion of construction.
- B. Closed Circuit Television (CCTV) inspection of sanitary sewer is required to:
 - 1. Document the existing condition of the host pipe.
 - 2. Verify pipe diameter, length, grade and bends.
 - 3. Verify spot repair locations and determine if additional spot repairs are required.
 - 4. Ensure that the pipeline is properly cleaned just after any required spot repairs and immediately prior to installing the liner.
 - 5. Ensure proper liner installation and installation of cured-in-place pipeline lining and new pipeline.
 - 6. Ensure proper installation of pipes after rehabilitation by pipe bursting or open cut methods.
 - 7. Insure proper and timely lateral reinstatement.
 - 8. Verify size and location of all lateral connections.
 - 9. Verify all live laterals, including but not limited to the means of dye testing, vacuum potholing, etc.
 - 10. Confirm proper installation of new pipe or liner upon completion of construction.

1.02 REFERENCED DOCUMENTS

- A. All work must also conform to the latest edition of the following specifications (as required in advance by the Owner)
 - 1. NASSCO PACP Standards
 - 2. State Department of Transportation, Construction and Materials Specification
 - 3. Rules and Regulations and Standard Drawings

4. Rules and Regulations of the Office of the City Engineer
5. Others, as required

1.03 RELATED SECTIONS

- A. Section 02345, **PIPE BURSTING**
- B. Section 02735, **CLEANING OF GRAVITY SEWERS**
- C. Section 02737, **SANITARY SEWER SYSTEM TESTING**

1.04 SUBMITTALS

- A. Submittals for items specified herein shall be submitted by the Contractor and shall be in accordance with the "Submittals" subsection of the Special Provisions. Submittals shall be provided to confirm that materials to be used comply with information specified herein. Submittals Required include:
 1. Documentation of NASSCO PACP certification for all CCTV operators, database and software
 2. Sample inspection CCTV data and video or data from other approved inspection method
- B. The Contractor shall provide to the City a pre-installation and post-installation video recording and suitable inspection log for each sewer line to be rehabilitated and/or constructed.
 1. Electronic files for the CCTV inspection video recording and a suitable log of the inspection shall be provided to the City at least five working days prior to rehabilitation and within three working days after rehabilitation. If post-rehabilitation inspection recordings are not submitted within three working days of the rehabilitation, the Construction Manager may, at their discretion, suspend any further rehabilitation until the post-rehabilitation recordings are submitted. As a result of this suspension, no additional working days will be added to the contract, nor will any adjustment be made for increase in cost.
 2. CCTV Reports, logs, electronic reports, and worksheets must include the following information and conform to the applicable guidelines: 1 CCTV Reports, NASSCO PACP Certified Database, and electronic worksheets must accompany all inspection work. 2 All Owner and NASSCO PACP required header information must be fully and accurately entered on all CCTV reports. In addition to the header field required by NASSCO, the header shall also include the following
 - a. Pipe segment reference/Project ID number (i.e. DL 27).
 - b. Upstream MH rim to invert (ft)
 - c. Upstream MH grade to invert (ft)
 - d. Upstream MH rim to grade (ft)

- e. Downstream MH rim to invert (ft)
 - f. Downstream MH grade to invert (ft)
 - g. Downstream MH rim to grade (ft)
 - h. Pipe joint length (ft)
 - i. Total length (ft)
 - j. Length surveyed (ft)
3. Electronic files provided for the video inspection shall meet the following requirements:
- a. One file shall be provided for each manhole to manhole pipe segment.
 - b. Video files shall be provided in MPEG format with the following naming convention:
 - c. VIDEO-UPSM_DSMH_Direction_Street_Date_Time.mpg
 - d. Picture files shall be provided in JPEG format with the following naming convention:
 - e. JPEG-UPSM_DSMH_Direction_Street_Date_Time_PACP Code.jpg
 - f. Inspection log files shall provided in PDF format with the following naming convention:
 - g. PDF-UPMH_DSMH_Direction_Street_Date_Time.pdf
4. Pre-rehabilitation inspection log: Submitted with each pre-rehabilitation video recording. The log shall identify the sewer line by manhole numbers, street location, and plan sheet number. The log shall include:
- a. The cleaning and inspection dates.
 - b. Location and alignment length.
 - c. Location of all laterals.
 - d. Pipeline sags: length and depth
 - e. Grade breaks: type and location
 - f. Documentation and detailed description of defects and any repairs necessary prior to rehabilitation, including distance from nearest manhole and conformance to cleaning requirements.
5. Post-rehabilitation inspection log: Submitted with each post-rehabilitation video recording. The log shall identify the sewer line by manhole numbers, street location, and plan sheet number. The log shall include:
- a. The inspection dates.
 - b. Location and alignment length.
 - c. Location and description of all debris in the sewer.
 - d. Defects in the new pipe or liner, including, but not limited to, gouges, cracks, bumps, wrinkles, or bulges.
 - e. Defects in the pipe installed by open-cut method, including, but not limited to sags, offset joints, or cracks.

- f. Location and inspection of lateral reinstatements, and connection to manholes.

1.05 PRE-QUALIFICATIONS

- A. The Contractor must have an onsite field supervisor with a minimum three (3) years of experience specializing in the televising of sewers. A foreman for each crew performing television inspection with a minimum of five years of experience specializing in that type of work may be substituted for the onsite field supervisor requirement. The Contractor shall provide the names, titles, phone numbers and addresses of a minimum of two references that can be used to verify this experience. The references must be contract managers or persons of authority over cleaning and televising work performed by the Contractor.
 - 1. The Contractor shall also provide five (5) similar projects with inspection equipment as proposed for this project.
 - 2. The Contractor must have foreman or supervisors meeting all pre-qualifications for the duration of the contract.
- B. PACP Requirements
 - 1. Current NASSCO PACP certification of all CCTV operators, working on this project, will be required for all CCTV work.
 - 2. Database shall be an NASSCO-PACP (Current Version) Certified Access Database.
 - 3. CCTV Software shall be NASSCO-PACP (Current Version) certified.
 - 4. CCTV inspections (Video and Data Collected) will be delivered entirely in digital format.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The Contractor shall furnish and maintain, in good condition, all cleaning and televising equipment necessary for proper execution of the work. All equipment specification herein shall be manufactured or fabricated to withstand the severity of the work covered under this specification.

2.02 CCTV CAMERA

- A. The Contractor shall use a color pan and tilt camera or a side wall scanning (panoramic) camera specifically designed and constructed for sanitary sewer inspection.
- B. The Camera shall be a 360 degree radial view, color image camera capable of rotating to look directly up tee and wye connections.

- C. The camera height shall be adjustable, as required. The camera height shall be centered within the pipeline(s) to be inspected.
- D. The camera shall be intrinsically safe and shall be operative in wet conditions, 100 percent humid conditions, and completely submerged in sanitary sewer.
- E. Lighting intensity shall be remotely controlled and shall be adjusted to minimize reflective glare.
- F. Lighting and camera quality shall provide a clear, in-focus picture of the entire inside periphery of the sewer.

2.03 VIDEO TITLING

- A. Video equipment shall include genlocking capabilities to the extent that computer generated data, (i.e., footage, date, size, address, and location, etc.) as determined by the City can be overlaid onto video, and both indicated on the television monitor and permanently recorded on the inspection video recording. The overlay shall be located in the corners of the video, off the screen center. Inspection header information shall also be overlaid on still images, but shall be abbreviated to include at a minimum: upstream and downstream manhole IDs; direction of inspection; distance from deployment manhole; and video counter or video time elapsed.

2.04 RECORDING

- A. Video recordings shall be in color and in MPEG 1 or 2 format. The minimum video bit rate shall be 4.0 Mega-bits per second (Mbps) and minimum audio bit rate shall be 128 Kilo-bits per second (Kbps).
- B. The camera source image capture shall provide image with a minimum of 640 x 480 pixels capture. The video shall be at least 30 frames per second.
- C. Out-of-focus video recording or low quality and blurred pictures due to steam or smudged camera lens, or portions thereof, shall be cause for rejection of the video recording.
- D. Recordings shall include, a pause at and zoom in on the lateral connections sufficient for identification of the condition of the connection.
- E. Recordings shall include a pause at and zoom-in on the defects sufficient for identification of the type of problem.
- F. Audio portions shall be sufficiently free from electrical interference and background noise to provide complete intelligibility of oral report. The Contractor shall give oral commentary on pipeline location, manhole numbers, direction of inspection, and at all structural features including, but not limited to, defects, debris build-up, lateral connections, and all features as directed by the Construction Manager.

2.05 FOOTAGE COUNTER

- A. A continuous read-out of the camera distance (in feet) from the starting manhole to the end point at all times. The footage counter shall be accurate to plus or minus two (2) feet of the measured linear footage between manholes along the existing sewer centerline from the start of pipe to end of pipe.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall perform all CCTV inspections in accordance with NASSCO's Pipeline Assessment Certification Program (PACP). All City and PACP required header information must be fully and accurately entered on all CCTV reports. Work not following these specifications may be rejected for payment and the Contractor may be required to re-do the work.
- B. Upon award of the contract, the Contractor shall CCTV at least three (3) segments or 1,000 feet of pipe and submit the data to the Owner to verify that the CCTV database is compatible with the Owner's PACP Database, and the deliverables are acceptable to the Owner. The Owner shall verify acceptability of the deliverables within five (5) business days of receipt.
- C. It shall be the Contractor's responsibility to remove materials and equipment that has been lodged in the sewer from cleaning, television inspection, or point repair excavations.

3.02 TELEVISION INSPECTION

- A. The video recording shall start on the surface of the street and capture any landmarks available such as street signs, house numbers and or recognizable terrains. Continue the recording (un-paused) into the manhole and pipe invert where the PACP coding will begin. The entire inspection should not be paused providing a complete uninterrupted inspection from node to node.
- B. Manual winches, power winches, TV cables, and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the sewer line. Winches, cables, or other devices shall not damage sewer pipes and appurtenances.
- C. The Contractor shall use a color pan and tilt camera or a side wall scanning (panoramic) camera specifically designed and constructed for sewer inspection. Each sewer to be televised shall be suitably isolated to control flow during the inspection. The Contractor shall provide a recording of the televised sewer inspection, locating each sewer service connection entering the sewer.
- D. Flow level in the sewer pipeline during CCTV inspection shall be no more than approximately one-third (1/3) of the inside diameter of the pipe so that approximately two thirds (2/3) of the pipe can be inspected. The Contractor shall plug or bypass flow to meet this requirement.

- E. Lighting for the pan and tilt camera or side wall scanning camera shall provide a clear picture of the entire periphery of the existing sewer.
- F. The pan and tilt camera shall pause, pan, and visually inspect all service connections, pipe ends, and maintenance or structural defects. If utilizing a camera with side wall scanning capabilities, pausing and panning of each lateral is not necessary during the inspection if the image clearly depicts the inside of the lateral for post processing. If a blockage cannot be removed and hampers the televising of the sewer in one direction then the Contractor shall attempt to complete the section by televising from the other manhole to complete the section, this reversal should immediately follow the initial direction. The Contractor must immediately report the obstruction to the Owner.
- G. Side wall scanning inspection systems are imaging cameras that are capable of a continuous 360 degree image capture of the wall of the pipeline being inspected. These systems may have one or multiple cameras to capture the complete interior view of the pipeline. Due to the high resolution of the image quality, the inspections may be conducted at a higher speed than color pan and tilt CCTV method. Once the pipeline inspections are completed, the captured images can be linked with a companion software package that allows for identifying and coding defects and features in the pipeline. Typically these systems provide a fold flat view and a perspective view (typical of CCTV) of the pipeline.
- H. Inspection Rate
 1. The camera advancement through the pipeline shall be in accordance with PACP requirements. It shall be at a speed that allows a clear picture of the pipeline and allows for thorough investigation of all structural features of the pipeline. The speed shall be adjusted based on direction from the Construction Manager.
 2. In no case may the CCTV camera travel at a speed greater than 30 feet per minute (60 feet per minute if optical digital scanning cameras by iBAK Panoramio, EnviroSight, or equal are used).
 3. The camera shall be moved through the line in either direction at a moderate rate, stopping when necessary to permit proper documentation of the sewer's condition.
 4. The Contractor shall pause, pan, and visually inspect all service connections, pipe ends, and maintenance or structural defects. If utilizing a camera with side wall scanning capabilities, pausing and panning of each lateral is not necessary during the inspection if the image clearly depicts the inside of the lateral for post processing.
- I. Reverse Setup
 1. If, during the inspection operation, the inspection platform will not pass through the entire pipe reach from manhole to manhole, the Contractor shall set up its equipment so that the inspection can be performed from

the opposite manhole (reverse setup). This reverse setup should immediately follow the initial direction.

2. During inspection of existing pipelines or pre-construction inspections, if the platform again fails to pass through the entire pipe reach in the reverse setup, the inspection shall be considered complete and noted as "Survey Abandoned" (MSA). The Contractor shall notify the City immediately upon abandonment of any survey and must immediately report the any obstructions to the City.
- J. If the image quality is not adequate for post-inspection coding, the Contractor shall be required to repeat the survey at the Contractor's expense.
- K. The Contractor shall perform all CCTV inspections in accordance with NASSCO's Pipeline Assessment Certification Program (PACP). CCTV inspections will be delivered entirely in electronic format. The entire survey shall be recorded in an approved electronic format submitted with electronic links between the data and the video. All television inspection reports shall be with-in +/-two (2) feet of the measured linear footage between manholes along the existing sewer centerline from the start of pipe to end of pipe. All Owner and PACP required header information must be fully and accurately entered on all CCTV reports. Work not following these specifications may be rejected for payment and the Contractor may be required to re do the work.
- L. The Contractor shall provide a PACP certified operator on site at all times during the entire survey. If video is to be coded separately from the actual recording, both the onsite Operator and the individual performing the PACP coding shall be PACP certified. The Contractor shall provide proof of certification prior to commencement of work, prior to a change in personnel involved in data collection, and as requested by the Owner

PART 4 - 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 02737

SANITARY SEWER SYSTEM TESTING

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all labor, materials, tools, and equipment necessary to perform acceptance testing for completed sewer pipelines and manholes.
- B. The Contractor shall notify the City or its Representative at least one (1) business day prior to any testing work. All final testing of sewer lines shall be done in the presence of the Inspector.
- C. The Contractor shall complete testing of sewer piping and manholes as required in this Section prior to performing post installation television inspection.
- D. If deficiencies are identified during testing, the Contractor shall re-test after the deficiencies have been corrected.

1.02 RELATED SECTIONS

- A. Section 013500, **BYPASS PUMPING**
- B. Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**
- C. Section 02345, **PIPE BURSTING**
- D. Section 02600, **SIDE SEWERS**
- E. Section 02701, **MANHOLE AND CLEANOUT CONSTRUCTION**
- F. Section 02735, **CLEANING OF GRAVITY SEWERS**
- G. Section 03600, **GROUT**
- H. Section 15050, **GENERAL PIPING**
- I. Section 15064, **POLYVINYL CHLORIDE (PVC) PIPE**
- J. Section 15066, **HIGH DENSITY POLYETHYLENE (HDPE) PIPE**

1.03 REFERENCE SPECIFICATIONS

- A. Commercial Standards:

ASTM C 969	Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines
ASTM C 1091-03a	Test Method for Hydrostatic Infiltration Testing of Vitrified Clay Pipe Lines
ASTM D 3034	Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM F 679	Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
Uni-Bell, B-6	Recommended Practice for low Pressure Air Testing of Installed Sewer Pipe

PART 2 - PRODUCTS

2.01 GENERAL

- A. Mandrels, temporary plugs, low-pressure testing equipment and all other necessary materials shall be provided by the Contractor, subject to the City's approval. No materials shall be used which would be injurious to the public, personnel, adjacent improvements or the pipeline.

2.02 PRESSURE GAUGES

- A. Pressure gauges shall be laboratory-calibrated test gauges and shall be recalibrated by a certified laboratory prior to the leakage test. Gauge shall be easy to read in no more than one (1) pound per square inch (psi) increments and have a maximum full-scale range of five (5) psi.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall clean pipelines in accordance with Section 02735 **CLEANING OF GRAVITY SEWERS** prior to performing testing.
- B. After testing is performed, as specified herein, the Contractor shall perform post-installation television inspection of pipelines per Section 02736 **TELEVISION INSPECTION OF SANITARY SEWER SYSTEM**.
- C. The Contractor shall perform pipeline testing after submittal of compaction reports demonstrating compliance with the backfill compaction requirements included in Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL** and before performing post installation television inspections.
- D. Work shall meet or exceed the requirements of these Specifications unless applicable requirements of an agency having jurisdiction (including the terms and

conditions of an encroachment permit issued by a city or county) are greater, in which case the greater requirements shall govern.

3.02 JOINT DISPLACEMENT & DEFLECTION TESTING

- A. PVC and HDPE pipe eight (8) inches in diameter or larger shall be tested for deflection, joint displacement, or other obstruction by passing a rigid mandrel through the pipe. Deflection shall be tested after submittal of daily compaction reports demonstrating compliance with, but prior to, permanent resurfacing.
- B. The mandrel shall be a full circle, rigid, non-adjustable, an odd-numbered leg (9 leg minimum), approved by the Engineer as to design and manufacturer. Mandrel size shall meet the minimum requirements set forth in ASTM D 3034 and ASTM F 679. The circular cross section of the mandrel shall have a diameter of at least ninety five percent (95%) of the specified average inside diameter of the pipe and the minimum length of the circular portion of the mandrel shall be equal to the nominal diameter of the pipe.
- C. Where obstructions and excessive deflection are encountered by the mandrel, the Contractor shall remove, replace and retest the deficient section. Re-rounding will not be allowed.

3.03 LEAKAGE TESTING FOR GRAVITY SEWER PIPELINES

- A. All gravity lines shall be tested with air as the test medium, unless otherwise approved by the City.
- B. The Contractor shall test the air tightness of all new or rehabilitated gravity sanitary sewer pipelines. Testing shall be performed in the presence and under the direction of the City or the City's Representative.
 - 1. PVC piping shall be tested in accordance with Uni-Bell PVC Pipe Association, B-6 Recommended Practice for Low Pressure Air Testing of Installed Sewer Pipe, latest edition and as specified herein.
 - 2. VCP piping shall be tested in accordance with ASTM C828-06, Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines and the requirements specified herein.
 - 3. HDPE piping shall be tested in accordance with ASTM F 1417. Standard Practice for Installation Acceptance of Plastic Non-pressure Sewer Lines Using Low-Pressure Air.
 - 4. Ductile Iron pipe shall be tested as specified herein.
- C. Each section of new sewer and its appurtenant connected laterals shall be tested between successive manholes or structures by plugging and bracing all openings in the sewer lines. If any leaks are found, the air pressure shall be released, the leaks eliminated, and the test procedure re-started.
- D. The pipeline shall be thoroughly cleaned prior to testing.

- E. Air testing sewer mains, particularly larger diameter mains, can be very dangerous due to the very large forces developed. The Contractor shall be fully responsible and take all precautions necessary to ensure the safety of their workers. All plugs shall be adequately braced and restrained to support the full load developed. No workers shall be allowed in the excavation or manhole while the line is under pressure. The Contractor shall make provisions for reading the pressure at the ground surface and for safely releasing the air pressure without entering the manhole or excavation.
- F. The following procedure shall be used for air testing:
1. Plug all pipe outlets with suitable test plugs. Brace each plug securely.
 2. If the pipe to be tested is submerged in groundwater, insert a pipe probe by boring or jetting into the backfill material adjacent to the center of the pipe, and determine the pressure in the probe when air passes slowly through it. This is the backpressure due to groundwater submergence over the end of the probe. All gauge pressures in the test shall be increased by this amount.
 3. Add air slowly to the portion of the pipe being tested until the internal pressure is raised to 4.0 psig.
 4. Check exposed pipe and plugs for abnormal leakage by coating with a soap solution. If any leakage is observed, bleed off air and make necessary repairs.
 5. After an internal pressure of 4.0 psig is obtained, allow at least two (2) minutes for air temperature to stabilize, adding only the amount of air required to maintain pressure. After two (2) minute period, disconnect the air supply prior.
 6. Begin the test period. In no case shall the air pressure within the line be less than four (4) pounds per square inch at the beginning of the test period.
 7. The required test time shall be a minimum of ten (10) minutes.
 8. If the pressure remains constant during the test period, the line has passed. If the pressure drops during the test time, the line has failed the test.
- G. Hydrostatic testing of gravity pipelines may be performed in lieu of air testing if approved by the City, testing shall be in accordance with the following procedures:
1. After installation of new sewer pipeline it shall be thoroughly cleaned prior to pressure testing. A section of sewer shall be prepared for testing between two structures by plugging the inlet side of the discharge manhole and all openings in the upstream manhole except the discharge opening. All plugs shall be properly braced against the manhole wall to withstand the forces of the test in order to prevent loss in the event of a failure.
 2. The section of the piping shall be tested by filling it with water to an elevation four (4) feet above the top of pipe at the upstream end of the test section, or four (4) feet above the existing groundwater elevation,

whichever is greater. If the water level is maintained for a minimum of fifteen (15) minutes, the line has passed.

- H. When leakage exceeds the amount allowed by the specifications, the Contractor shall locate the leaks, submit a repair procedure for the City review, make the necessary repairs, and re-test the segment at no additional cost to the City.

3.04 ALLOWABLE PIPELINE SAG

- A. For new piping installed by open trench method, if it is determined that a sag is present during the post-installation CCTV inspection and the sag depth is equal to or greater than ten (10) percent of the new pipe inside diameter, the contractor shall repair the sag at no additional cost to the City.
- B. The Contractor shall re-perform testing as specified herein and post-installation CCTV inspection after the pipeline sag has been repaired. All costs associated with re-testing and re-inspection of the pipeline shall be borne by the Contractor.

3.05 TESTING OF MANHOLES

- A. The City may require vacuum testing of new manholes for leakage after installation and prior to backfilling.
- B. Prior to vacuum testing, all manholes shall be visually inspected. All defects shall be repaired by the Contractor, with grout, to the satisfaction of the City or the City's Representative.
- C. All pipes entering the manhole shall be sealed at a point outside the manhole walls so as to include testing of the pipe/manhole joints.
- D. A vacuum of ten (10) inches of mercury shall be drawn on the manhole, the valve on the vacuum line of the test hood closed and the vacuum pump shut off. The manhole shall be deemed to have passed the test if the vacuum drop is less than one (1) inch of mercury during a one (1) minute test period.
- E. If the manhole does not pass the vacuum testing, then the Contractor shall either replace the manhole or make the necessary repairs and re-test at no additional Cost to the City.

PART 4 - 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*****

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish all materials for concrete 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 in accordance with these Standard Specifications and the Contract Documents.
- B. This Section includes:
 - 1. Cast-in-place concrete.
 - 2. Reinforcing steel.
 - 3. Forms.
 - 4. Concrete accessories.

1.02 RELATED SECTIONS

- A. Section 01100, **MOBILIZATION AND DEMOBILIZATION**
- B. Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**
- C. Section 02701, **MANHOLE AND CLEANOUT CONSTRUCTION**

1.03 REFERENCE SPECIFICATIONS

- A. Referenced Standards:
 - 1. Latest version of all.
 - 2. ACI 214: Recommended Practice for Evaluating Compression Test Results of Field Concrete.
 - 3. ACI 224: Control of cracking in Concrete Structures.
 - 4. ACI 301: Specifications for Structural Concrete.
 - 5. ACI 305: Recommended Practice for Hot Weather Concreting.
 - 6. ACI 306: Recommended Practice for Cold Weather Concreting.
 - 7. ACI 306.1: Standard Specifications for Cold Weather Concreting.

8. ACI 315: Manuals of Standard Practice for Detailing Reinforced Concrete Structures.
9. ACI 318: Building Code Requirements for Reinforced Concrete.
10. ACI 347: Recommended Practice for Concrete Formwork.
11. ACI 350: Environmental Engineering Concrete Structures.
12. ASTM A82: Cold-Drawn Steel Wire for Concrete Reinforcement.
13. ASTM A185: Welded Wire Fabric for Concrete Reinforcement.
14. ASTM A497: Welded Preformed Steel Wire Fabric for Concrete Reinforcement.
15. ASTM A615: Deformed Billet-Steel Bars for Concrete Reinforcing.
16. ASTM C31: Making and Curing Concrete Test Specimens in the Field.
17. ASTM C33: Concrete Aggregate.
18. ASTM C39: Test for Compressive Strength for Cylindrical Concrete Specimens.
19. ASTM C94: Ready-Mixed Concrete.
20. ASTM C127: Test for Specific Gravity and Adsorption of Coarse Aggregate.
21. ASTM C128: Test for Specific Gravity and Adsorption of Fine Aggregate.
22. ASTM C136: Test for Sieve or Screen Analysis of Fine and Coarse Aggregates.
23. ASTM C143: Test for Slump of Portland Cement Concrete.
24. ASTM C150: Portland Cement.
25. ASTM C192: Making and Curing Concrete Test Specimens in the Laboratory.
26. ASTM C231: Test for Air Content of Freshly Mixed Concrete.
27. ASTM C260: Air Entraining Admixtures for Concrete.
28. ASTM C494: Chemical Admixtures for Concrete.
29. ASTM C618: Fly Ash and Raw on Calcined Natural Pozzolans for use in Portland Cement.
30. PS1: Construction and Industrial Grade Plywood (ANSI A199.1).

1.04 SUBMITTALS

- A. Submittals for items specified herein shall be submitted to the City for review in accordance with the "Submittals" subsection of the Special Provisions.

1.05 QUALITY ASSURANCE

- A. Tolerances: ACI 301 and ACI 347 as modified herein. In case of conflict ACI 347 governs over ACI 301.
- B. For quality assurance of the concrete mix design, the Contractor shall provide the following:
1. Contractor to provide and pay for the concrete mix design.
 2. Test the proposed concrete mix for each size and gradation of aggregates and each consistency intended for use in the project.
 3. Aggregates:
 - a. Sample and test according to ASTM C33.
 - b. Determine bulk specific gravity in accordance with ASTM C127 and C128.
 4. Compression tests:
 - a. Contractor shall prepare two (2) sets of compression test cylinders from each proposed concrete mix, three (3) cylinders per set.
 - b. Test one (1) set of three (3) cylinders at seven (7) days, the other at 28 days.
 - c. Make, cure, and store in accordance with ASTM C192.
 - d. Test in accordance with ASTM C39.
 - e. Slump test: ASTM C143.
 - f. Total air content: ASTM C231.
 5. Initial set test:
 - a. In accordance with ASTM C403.
 - b. Test at 70 degrees F and 90 degrees F ambient.
 - c. Test at 70 degrees F on mix including specified plasticizing and air entraining admixtures.
 - d. Test at 90 degrees F on mix including specified retarding and air entraining admixtures.

6. Fly ash: Supplier's chemical composition and physical analysis test.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Storage and protection:

1. Cement and fly ash.
 - a. Store in moistureproof enclosures.
 - b. Do not use if caked or lumpy.
2. Aggregate.
 - a. Store to prevent segregation and inclusion of foreign materials.
 - b. Do not use the bottom 6 inches of piles in contact with the ground.
 - c. Reinforcing steel: Store on supports that will keep it from contact with the ground.
 - d. Rubber and plastic materials.
 - i. Store in a cool place.
 - ii. Do not expose to direct sunlight.
 - e. Sealers, form coatings, etc.
 - f. Store indoors according to manufacturer's request.
 - g. Discard any improperly stored materials.

B. Acceptance at site:

1. Prepare a delivery ticket for each load of ready-mixed concrete.
2. Truck operator shall hand ticket to Engineer at the time of delivery.
3. Ticket to show actual:
 - a. Quantity delivered.
 - b. Actual amount of each material in batch.
 - c. Outdoor temperature in the shade.
 - d. Time at which cement was added.
 - e. Truck, project, and mix design identification number.
4. Failure to provide the delivery ticket will be cause to reject the load.

1.07 SOURCE QUALITY CONTROL

A. Test reports:

1. The Contractor shall submit reports of tentative concrete mix design and testing including:
 - a. Slump on which the design is based.
 - b. Total gal of water per cu yd.
 - c. Brand, type composition, and quantity of cement.
 - d. Brand, type, composition, and quantity of fly ash.
 - e. Specific gravity and gradation of each aggregate.
 - f. Ratio of fine to total aggregates.
 - g. Surface-dry weight of each aggregate per cu yd.
 - h. Brand, type, ASTM designation, active chemical ingredients and quantity of each admixture.
 - i. Air content.
 - j. Compressive strength based on 7 day and 28 day compression tests.
 - k. Time of initial set.
2. Submit suppliers certified fly ash test reports for each shipment delivered to concrete supplier.
 - a. Physical and chemical characteristics.
 - b. Certification of compliance with the specifications.
 - c. Signed by Contractor and concrete supplier.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Forms:

1. Prefabricated: Simplex "Industrial Steel Frame Forms," Symons "Steel Ply," Universal "Uniform," or equal.
2. Plywood: PS1, waterproof resin-bonded, exterior type Douglas Fir; face adjacent to concrete, Grade B or better.

3. Fiberboard FS LLL-B-810, Type IX, tempered, waterproof, screen back, concrete form hardboard.
 4. Lumber: Straight; uniform width and thickness; and free from knots, offsets, holes, dents, and other surface defects.
 5. Form coating: Industrial lubricants "Nox-crete Form Coating," W. R. Meadows "Durogard," PRECO "Reebol Form Cote," or equal.
 6. Form ties: Removable end, permanently embedded body type not requiring auxiliary spreaders, with cones on outer ends, embedded portion 1-inch minimum back from concrete face. If not provided with threaded ends, constructed for breaking off ends without damage to concrete.
- B. Reinforcing steel:
1. Bars: ASTM A615, Grade 60.
 2. Welded wire fabric: ASTM A185 or A497.
 3. Bar supports: PS7; CRSI Class B or E, fabricated from galvanized wire or having stainless steel legs.
- C. Concrete:
1. Cement shall be: ASTM C150, Type II or Type II LA.
 2. Fly ash shall be in accordance with ASTM C618, Class F, except loss on ignition not more than 5 percent.
 3. Fine aggregate shall be clean, natural sand ASTM C33, or natural materials processed to conform to ASTM C33.
 4. Coarse aggregate shall be crushed rock, natural gravel, or other inert granular material, ASTM C33 except clay and shale particles no more than 1 percent.
 5. Water shall be clean and free of deleterious substances.
 6. Admixtures shall be the following, or equal:
 - a. Retarder: ASTM C494, Type D; Grace "Duratard-HC," Master Builders "Pozzolith 300-R," Protex "Protard," Sika Chemical "Plastiment".
 - b. Plasticizer: ASTM C494, Type A; Grace "Daracem-100," Master Builders "Rheobuild 1000".
 - c. Air entraining agent: ASTM C260; Grace "Darex AEA," Master Builders "Micro-Air," W. R. Meadows "Sealtight".

- d. Water reducer: Master Builders "Pozzolith 322N.
- D. Joints for use in sidewalk, curb, gutter, and concrete pavement.
 - 1. Liquid joint sealant for isolation joints shall be silicon.
 - 2. Use compression seal for all joints.
 - 3. Joint Filler for isolation joints shall be bituminous expansion joint filler.

2.02 MIXES DESIGN

- A. Concrete Mix Designs Shall Comply with ASTM C94.
- B. Unless otherwise specified, concrete mix designs shall have a minimum 28-day compressive strength of 4,000 psi, a maximum aggregate size of 1.0 inch, a minimum of six sacks of cement per cubic yard, maximum water to cement ratio of 0.45 by weight, and slump between 3-5 inches.
- C. All concrete shall have an air entrainment of 4.0 ± 1.0 percent.
- D. Initial set:
 - 1. 5-1/2 hours ± 1 hr after water and cement are added to the aggregates as determined by ASTM C403.
 - 2. Adjust retarder quantities to compensate for temperature and job condition variations.
- E. Admixtures:
 - 1. Content, batching method, and time of introduction in accordance with the manufacturer's recommendations for compliance with this specification.
 - 2. Include a water reducing admixture.
 - 3. Calcium chloride is not permitted.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Forms:
 - 1. Forms to confine the concrete and shape it to the required lines shall be used wherever necessary. The Contractor shall assume full responsibility for the adequate design of all forms, and any forms that are unsafe or inadequate in any respect shall promptly be removed from the jobsite and replaced. The design and inspection of concrete forms, false work, and shoring shall comply with applicable local, state and federal regulations. All design, construction, maintenance, preparation, and removal of forms

shall be in accordance with ACI 347 and the requirements specified herein.

2. All vertical surfaces of concrete members shall be formed, except where placement of the concrete against the ground is called for on the plans.
3. Forms may be reused only if in good condition and acceptable to the City.

B. Reinforcing steel:

1. Accurately position reinforcing steel on supports, spacers, hangers, or other reinforcing steel.
2. Secure with wire ties or suitable clips.
3. Except at contact splices, minimum clear distance between bars, the greater of:
 - a. Nominal diameter of bars.
 - b. 1.5 times maximum size of coarse aggregate.
 - c. 1-inch in beams.
 - d. 2 inches in other locations.
4. Where beam reinforcement is placed in 2 layers, place bars in upper layer directly above bars in lower layer.
5. Accurately formed.
6. Free from loose rust, scale, and contaminants that will reduce bond.
7. Splices:
 - a. Do not weld or tack weld reinforcing steel except where specifically indicated on Drawings.
 - b. Remove and replace steel upon which any unauthorized welding has been performed.
 - c. When splicing bars in tie beams subject to tensile loading, splice no more than half the bars within a length of 40 bar diameter and hook each spliced bar end 180 degrees.
8. Do not bend or rebend reinforcing steel at job site. Bending of steel in locations not shown on Drawings shall be cause for rejection of work.

C. Concrete:

1. Notify Engineer not less than 24 hours in advance of the times and places at which Contractor intends to place concrete.

2. Predetermine limits at each pour.
3. Place all concrete within limits of pour in one (1) continuous operation.
4. Rigidly secure forms, and reinforcing steel in proper position.
5. Remove all mud, water, and debris from space to be occupied by concrete.
6. Clean surfaces encrusted with dried concrete from previous concrete operations.
7. Bonding to hardened concrete:
 - a. Place new concrete on rough, clean, damp faces of existing concrete.
 - b. Remove surface mortar to expose aggregate.
 - c. Clean hardened concrete of all foreign substances, including curing compound.
 - d. Wash with clean water, and keep saturated for 24 hours preceding placement of fresh concrete.
 - e. Omit coarse aggregate from the first batch or batches of concrete placed on hardened concrete in wall forms.
 - f. The mortar puddle shall cover the hardened concrete to a depth of at least 2 inches at every point.
8. Conveying concrete:
 - a. Convey to the point of final deposit by methods that will prevent separation or loss of ingredients.
 - b. Place concrete in final position without being moved laterally more than 5 feet.
 - c. No aluminum materials shall be used in conveying any concrete.
9. Placing concrete:
 - a. Placing of concrete shall conform to the applicable requirements of Chapter 8 of ACI 301 and the requirements of this Section.
 - b. Concrete shall be conveyed from the mixer to place of deposit by methods that prevent separation or loss of material.
 - c. Place concrete in approximately horizontal layers of proper depth for proper compaction, not more than 2 feet.

- d. Place subsequent layer while the preceding layer is still plastic. No concrete shall be placed after there is evidence of initial set
- e. Fill form at a rate not less than 2 ft/hr.
- f. Do not allow concrete to free fall more than 4 feet when pouring.
- g. Top finish concrete when thoroughly settled.
- h. Remove all laitance, debris, and surplus water from the tops of the forms by screeding, scraping, or other effective means.
- i. Overfill the forms for walls whose tops will be exposed to the weather and screed off the excess after the concrete has settled.

10. Compaction:

- a. Thoroughly compact concrete during and immediately after placement.
- b. Work concrete around all reinforcements and embedments and into the corners of the forms.
- c. Use mechanical vibrators which will maintain 9,000 cycles/min when immersed in the concrete, 1-1/2 hp motor min.

11. Cold weather concreting:

- a. Comply with ACI 306 and 306.1, except as modified herein.
- b. Minimum concrete temperature at the time of mixing shall meet the following requirements:

Outdoor Temperature <u>at Placement (in shade)</u>	Concrete Temperature <u>at Mixing</u>
Below 0° F	70° F
Between 0° F & 30° F	65° F
Between 30° F & 45° F	60° F
Above 45° F	45° F

- c. Do not place heated concrete which is warmer than 80 degrees F.
- d. If freezing temperatures are expected during curing, maintain the concrete temperature at or about 50 degrees F for five (5) days or 70 degrees F for three (3) days.
- e. Do not allow concrete to cool suddenly.

- f. Do not place concrete on frozen subgrade.
12. Hot weather concreting:
- a. Comply with ACI 305, except as modified herein.
 - b. If the air temperature is expected to be 80 degrees F or greater in the next 24 hours.
 - i. Keep concrete as cool as possible before, during, and after placement.
 - ii. Do not allow concrete temperature to exceed 70 degrees F at placement.
 - iii. Prevent plastic shrinkage cracking due to rapid evaporation of moisture.
 - iv. Addition of ice, or other cooling methods, will be required to meet temperature requirements.
 - c. Do not place concrete when the actual or anticipated evaporation rate equals or exceeds 0.2 lbs/sq ft/hr as determined from ACI 305.
 - d. No concrete shall be placed when the ambient temperature exceeds one hundred five degrees Fahrenheit (105°F).
- D. Finishing unformed surfaces:
- 1. Do not finish buried or permanently submerged concrete not forming an integral part of a structure except as required to attain surface elevations, contours, and freedom from laitance.
 - 2. Screed and initial float finish followed by additional floating, and troweling as required, all other surfaces.
 - 3. Screeding:
 - a. Screed concrete surfaces to the proper elevation and contours with all aggregates completely imbedded in mortar.
 - b. Surface free of irregularities of height or depth more than 1/4 inch measured from a 10-foot straightedge.
 - 4. Floating:
 - a. Float finish screeded surfaces as soon as the concrete has stiffened sufficiently for working.
 - b. Remove and replace with mortar any coarse aggregate which is disturbed by the float or which causes a surface irregularity.
 - c. Initial floating to produce a surface of uniform texture and appearance without unnecessary working of the surface.

- d. Follow initial floating with a second floating at the time of initial set.
 - e. Second floating to produce a finish of uniform texture.
 - f. Except as otherwise specified, the second floating finish is the final finish.
 - g. Use hand floats or mechanical compactor floats.
5. Troweling:
- a. Steel trowel finish interior floor surface which will be exposed at the completion of construction, the exposed portion of the equipment bases, interior curbs, and where indicated on the Drawings.
 - b. Do not trowel floor surfaces which will be normally submerged.
 - c. Trowel after the second floating when the surface has hardened adequately to prevent drawing an excess of fines to the surface.
 - d. Trowel to produce a dense, smooth, uniform surface free from blemishes and trowel marks.
6. Aggregate exposure:
- a. Remove surface mortar from surfaces to be covered later with concrete or mortar topping.
 - b. Expose coarse aggregates to improve bonding.
7. Unless specified to be beveled, edge floated or troweled surfaces with a tool having a 1/4-inch radius.
- E. Curing:
- 1. Protect concrete from moisture loss for at least seven (7) days after placement except that the time period for curing by saturation for concrete being protected from low temperature shall be one day less than the duration of low temperature protection.
 - 2. Cure concrete by methods that will keep concrete surfaces adequately wet during curing.
 - 3. Water curing:
 - a. Begin water saturation as quickly as possible after initial set.
 - b. Regulate water application to provide complete surface coverage with a minimum of runoff.

- c. Use absorptive blankets to hold moisture to concrete or flood the surface.
4. Membrane curing:
- a. Membrane curing compound may be used in lieu of water curing on concrete which will not be covered later with mortar or concrete where water curing is not specifically called for.
 - b. Spray apply membrane curing compound at not more than 300 sq ft/gal.
 - c. Cover unformed surfaces within 30 minutes of final finishing.
 - d. If forms are removed before the end of the curing period, immediately apply curing compound to the formed surfaces before they dry out.
 - e. Protect curing compound against abrasion during the curing period.
5. Film curing:
- a. Polyethylene sheeting may be used in lieu of water curing on concrete which will be covered later with mortar or additional concrete, or will otherwise be covered or hidden from view where water curing is not specifically called for.
 - b. Begin film curing as quickly after initial set of the concrete as possible.
 - c. Completely cover the surfaces with polyethylene sheeting.
 - d. Overlap the sheeting edges for sealing and anchorage.
 - e. Seal joints between sheets.
 - f. Promptly repair tears, holes, and other damages.
 - g. Anchor covering continuously at edges and on the surfaces as required to prevent billowing
- F. Finishing formed surfaces:
- 1. Remove fins and other surface projections from all formed surfaces except exterior surfaces that will be in contact with earth backfill and are not specified to be dampproofed.
 - 2. Use a power grinder, if necessary, to remove projections and provide a flush surface.

3. Remove fins and fill tie hole on surfaces to be dampproofed but do not do any other finishing of those surfaces.
 4. Tie holes:
 - a. Clean, wet and fill with patching mortar.
 - b. Finish flush to match the texture of adjacent concrete.
 5. Grout - cleaned finish:
 - a. ACI 301, 5.3.3.4.b.
 - b. Grout clean surfaces to produce a smooth uniform surface free of marks, voids, surface glaze, and cement dust.
 - c. Grout clean all surfaces exposed to view and surfaces indicated on Drawings.
 - d. Fill all voids, regardless of location, that are 1/4-inch deep or 1/2-inch diameter.
- G. For surface improvements such as concrete pavement, sidewalks, the contractor shall Construct joints at the locations, depths, and with type and dimensions matching the adjacent existing concrete pavement. The contractor shall submit drawings describing proposed jointing in accordance with parameters described in these Specifications. The contractor shall not proceed with work until the jointing requirements are accepted by the engineer.

3.02 FIELD QUALITY CONTROL

- A. 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 shall be the Contractor's responsibility.
- B. Slump Testing: 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 each time standard test cylinders are molded. Tests shall be performed by the CONTRACTOR's independent firm.
- C. Air Content Testing: At least one test shall be taken at the commencement of the concrete placement and thereafter with each standard test cylinders are molded. Test shall comply with either the pressure method (ASTM C231) or by the volumetric method (ASTM C173). Tests shall be performed by the CONTRACTOR's independent testing firm, to be approved by the City.

PART 4 - 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 15050
GENERAL PIPING

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish and install all piping systems in accordance with the requirements of the Contract Documents. Pipe materials and installation procedures shall be in accordance with the pipe manufacturer's recommendations unless otherwise specified in this Section, or in the specific Section of these Standard Specifications for the particular pipeline material being used.
- B. Pipe sizes cited in these Standard Specifications and Details refer to the nominal diameter of the pipe in whole inches.
- C. For a particular sewer installation, pipe and manufactured fittings connecting pipe between structures shall be of one and only one manufacturer's brand and of the same type, quality, class and size.
- D. Where field cuts are required, the Contractor shall use tools and/or equipment recommended by the pipe manufacturer. No hammer and chisel cuts will be permitted.
- E. All pipe and fittings delivered to the jobsite shall be marked by the manufacturer with such inventory and identification (Brand Name, Pipe Type, Strength Class, Batch Lot, Lengths, etc.) as to be properly identified in the field as meeting the requirements of these Specifications.

1.02 RELATED SECTIONS

- A. Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**
- B. Section 02600, **SIDE SEWERS**
- C. Section 02735, **SANITARY SEWER SYSTEM TESTING**
- D. Section 02736, **TELEVISION INSPECTION OF SANITARY SEWERS**
- E. Section 02737, **SANITARY SEWER SYSTEM TESTING**
- F. Section 15064, **POLYVINYL CHLORIDE (PVC) PIPE**
- G. Section 15066, **HIGH-DENSITY POLYETHYLENE (HDPE) PIPE**

1.03 REFERENCE SPECIFICATIONS

- A. Commercial Standards:
 - 1. ANSI/ASME B1.20. Pipe Threads, General Purpose (inch)

2. ANSI/AWS D1.1 Structural Welding Code

B. Codes:

1. Cal/OSHA Construction Safety Orders

1.04 QUALITY ASSURANCE

A. Pipe shall be subject to inspection at the place of manufacture. During the manufacture of the pipe, the City shall be given access to all areas where manufacturing is in progress and shall be permitted to make all inspections necessary to confirm compliance with these Specifications.

B. Except where otherwise specified, all materials used in the manufacture of the pipe shall be tested in accordance with the applicable specifications and standards. The manufacturer shall perform all tests at its own cost.

C. All installed pipe shall be cleaned, tested and televised in accordance with Sections, 02735, **CLEANING OF GRAVITY SEWERS**, 02736, **TELEVISION INSPECTION OF SANITARY SEWERS**, and 02737 **SANITARY SEWER SYSTEM TESTING**. Work shall be performed in the following order:

1. Contractor shall clean the existing pipe in accordance with Section 02735, **CLEANING OF GRAVITY SEWERS**.

2. Contractor shall perform CCTV inspection in accordance with Section 02736, **TELEVISION INSPECTION OF SANITARY SEWERS** to determine laterals, limits of spot repairs if needed, defects that may limit available pipeline rehabilitation methods, and any other characteristics which may affect the work.

3. Contractor shall performed the work as outlined in various sections of these specifications and connect/reconnect laterals to the new or rehabilitated pipe.

4. Contractor shall perform a post-rehabilitation CCTV inspection in accordance with Section 02736, **TELEVISION INSPECTION OF SANITARY SEWERS**.

5. With the exception of spot repair sites, the contractor shall perform leakage testing of the rehabilitated or new pipe in accordance with Section 02737 **SANITARY SEWER SYSTEM TESTING**.

1.05 DELIVERY, STORAGE, AND HANDLING

A. All piping materials, fittings, valves, and accessories shall be delivered in a clean and undamaged condition, and stored off the ground. All pipe and appurtenances shall be protected from damage by sunlight, moisture, corrosive materials, equipment and other sources. All defective or damaged pipe or appurtenances shall be removed from the jobsite and replaced with new materials.

1.06 MANUFACTURER'S SERVICE REPRESENTATIVE

- A. Where the assistance of a manufacturer's service representative is required, in order to obtain compliance for pipe joints, supports, or special connections, the Contractor shall arrange for such assistance.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Pipes, fittings, and appurtenances shall be furnished in accordance with the requirements specified herein and the applicable Section of these Specifications for the particular pipeline material being used.

2.02 PIPING SCHEDULE

- A. Pipes, fittings, and appurtenances shall be furnished in accordance with the requirements of the applicable Section of these Standard Specifications.
- B. Where joint type is specifically indicated in the Standard Details or project Contract Documents, then that joint type shall be used.
- C. Special approval may be granted by the City for other pipe materials as necessary for the specific application.
- D. Pipe material shall be purchased in longest length practical in order to achieve the minimum number of pipe joints.
- E. Sanitary Sewer Gravity Main Pipe material shall be one of the following:
 - 1. PVC Solid Wall C900/C905 DR 18 with bell and spigot joints, per Section 15064, **POLYVINYL CHLORIDE (PVC) PIPE** shall be used for open trench construction unless otherwise noted or allowed.
 - 2. For pipe bursting, and/or sliplining installation: HDPE SDR 17 with butt thermal fused joints, per Section 15066, **HIGH DENISTY POLYETHYLENE (HDPE) PIPE**.
 - 3. For point repair work that occurs prior to other rehabilitation, Vitrified clay pipe may be used per Section 15055, **VITRIFIED CLAY PIPE**
- F. Sanitary Side Sewer (lateral) Pipe material shall be in accordance with Section 02600, **SIDE SEWERS**.

2.03 CONNECTION OF SIDE SEWERS TO MAINS

- A. Sewer lateral bends shall be made with sewer Combination Wye and (1/8) Bends. Connections shall be as shown in the Standard Drawings.
- B. Connections to new sewer mains shall be with wye fittings. Fitting material shall match that of the sewer main pipe material. The use of tap connections will not be allowed to new sewer mains installed by open trench method.

- C. Tap connections: Tap connections to existing mains 10-inch-diameter or larger will be acceptable where approved by the City. Tap connections shall be "Wye" type and shall be suitable for use with raw sewage. All hardware shall be Type 316 stainless steel.
- D. Connection of side sewers to HDPE mains shall be per Section 15066, **HIGH DENSITY POLYETHYLENE (HDPE) PIPE**.

2.04 WARNING TAPE

- A. Warning tape shall be provided above all buried sanitary sewer main piping. Warning tape shall indicate type of pipeline and shall be specifically designed for this use.
- B. The warning tape shall be 4.0 mil thickness minimum, linear low-density polyethylene specifically formulated for extended use underground.
- C. Sanitary sewer main warning tape shall be green in color. The warning tape shall be minimum 12-inches wide and printed continuously with the words "CAUTION: SEWER MAIN BELOW".
- D. Warning tape for laterals/side sewers shall be provided in accordance with Section 02600, **SIDE SEWERS**.

2.05 TRACER WIRE

- A. Tracer wire shall be provided for all buried non-metallic sanitary sewer piping. Tracer wire shall be number 12 THHN insulated copper wire shall be attached to top of and along the entire length of all pipelines and shall extend to the surface at every 1,000 feet max and at all bends 45 degrees or greater. Provide within manholes and cleanouts at these locations for locator equipment to be attached. Wires shall extend a minimum of 12 inches with 2 to 3-inch pigtailed above grade. Wires shall be placed inside box as shown on Drawings. All wire connections shall be made with copper crimps wrapped with electrical tape.
- B. Tracer wire shall be secured to top of pipe at intervals no greater than 10 feet.

2.06 ADJUSTABLE REPAIR COUPLINGS (BANDED RUBBER COUPLINGS)

- A. Adjustable repair couplings shall be used for joining dissimilar pipe materials or repairs on gravity pipelines, or where shown in the Standard Details or Contract Documents.
- B. Adjustable repair couplings shall meet the requirements of ASTM C1173, Standard Specification for Flexible Transition Couplings for Underground Piping Systems.
- C. Couplings shall be suitable for use with raw sewage.
- D. Couplings shall have sealing "O" rings under each sealing clamp band to prevent pipe slippage and provide a watertight seal.

- E. Where bushings for dissimilar types or sizes of pipe are required, bushings shall be installed by the coupling manufacturer.
- F. All hardware shall be type 316 stainless steel.

2.07 BOLTS, NUTS, AND WASHERS

- A. Unless otherwise specified, all bolts, nuts, washers, hardware, and other miscellaneous metalwork for pipe installation be Type 316 stainless steel.

PART 3 - EXECUTION

3.01 GENERAL

- A. Sewer pipelines shall be constructed to the alignment and grade shown on the project Contract Documents, and in compliance with the specified requirements of this Section and of the applicable sections in these Standard Specifications.
- B. Excavation for trenching shall be performed as shown in the Standard Details and as specified in Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**.
- C. Pipe cover for sewer pipelines shall be a minimum of 36 inches. Where this requirement cannot be met, then ductile iron pipe shall be used, unless otherwise shown or Directed by the City.
- D. Sewer pipelines shall have a minimum wall-to-wall horizontal clearance of three (3) feet and a minimum vertical clearance of twelve (12) inches from all other improvements and utilities unless otherwise shown on the plans as being allowed by the City under Special Approval.
- E. Where sewer pipelines are to be installed in the vicinity of potable water pipelines, wall-to-wall sewer-to-water pipeline separation shall be in conformance with the minimum requirements of the California Department of Health and Safety, Guidance memo number 2003-02. Sewer pipeline installation in the area labeled "Special Permission," will not be allowed unless specifically approved in writing by the water utility.

3.02 SEWER INSTALLATION

- A. For main sewers and trunk sewers, the grade line shall be established by setting cut stakes and obtaining City approval, before trench excavation is started. During pipe installation, the Contractor shall continuously utilize an industrial-standard laser grade control system to confirm that the pipe is installed to the design grade, subject to the following requirements:
 - 1. The Contractor shall provide a properly calibrated laser instrument and an operator who is qualified and trained in the operation of the particular laser instrument being used. The operator shall adhere to the provisions of the CalOSHA Construction Safety Orders regarding the use of laser equipment.

2. Laser control points shall be established bench marks or construction cut stakes.
 3. Laser must contain a direct grade reading screen, which will allow the Inspector to verify the grade at all times.
- B. Pipe shall not be laid if the Inspector determines that the condition of the trench is unsuitable.
 - C. If the sewer is to be laid in an area that is to be filled, and the cover prior to filling is less than the required minimum cover specified pipe material and type, the pipe shall not be laid until the area has been properly filled and compacted to a level at least equal to required minimum cover above the proposed pipe, unless otherwise authorized by the Inspector.
 - D. If field conditions in areas that are potentially unstable or subject to settlement warrant, the Inspector may require that the Contractor substitute a different pipe material/type for the pipe shown on the plans.
 - E. Pipe, fittings and appurtenances shall be carefully handled and protected against damage, impact shocks, and free fall. Pipe shall be stored in a manner which will protect it from damage at the trench site or elsewhere. The Contractor shall inspect each pipe and fitting prior to installation to determine that only undamaged material is installed.
 - F. Before placement of pipe in the trench, each pipe or fitting shall be thoroughly cleaned of any foreign substance and shall be kept clean at all times thereafter.
 - G. Sewer pipelines shall be laid upgrade from the point of connection to the existing sewer with the bell end at the upgrade end of each pipe length.
 - H. Layout of deflections and/or curves shall conform to the requirements specified in the applicable Section of these Standard Specifications for the particular pipe material being used.
 - I. Non-marring slings shall be used for lowering each length of pipe into the trench (chains shall not be used). The pipe shall be laid on properly compacted bedding material as specified in Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**. No blocking will be permitted and the pipe shall have full bearing for its entire length between bell holes excavated in said bedding material to prevent point loading at the bells or couplings and to allow for unobstructed assembly of all joints. Excavation shall be made as needed outside the normal trench section at field joints to permit adequate access to the joints for field connection operations and for application of coating on field joints. After jointing is completed, bell holes shall be backfilled with properly compacted bedding material, taking care not to damage, move, or lift the pipe from its bedding support.
 - J. Where it becomes necessary to modify the design pipe alignment to resolve conflicts with unforeseen obstructions or other causes, the Contractor shall propose a revised alignment to the City or the City's Representative for consideration. Such revision may be made by the deflection of joints, by the use of fittings or by forced bending of the pipe if permitted, however, in no case shall the

deflection in the pipe or at any joint exceed the maximum deflection recommended by the pipe manufacturer.

- K. Sewer pipes, branches, stubs, or other open ends which are not to be immediately connected, shall be plugged or capped.
- L. The Contractor shall take all necessary precautions to prevent excavated or other foreign material from getting into the pipe during the laying operations. At all times when laying operations are not in progress and at the close of the day's work, the openings of all pipe and specials, whether in the trench or in storage, shall be protected with suitable bulkheads to prevent unauthorized access by persons, animals, water, or any undesirable substance.
- M. The Contractor shall prevent the pipe from floating during and after its installation.

3.03 SIDE SEWER CONNECTIONS TO EXISTING SEWERS

- A. Specific project Contract Documents may not show all existing side sewer/laterals and locations may be approximate. The Contractor shall be responsible for locating all service connections within the repair/replacement area and determine if services are active. The Contractor shall determine which laterals are active versus abandoned and shall reinstate all active laterals. It is the responsibility of the Contractor to determine the exact location and depth of the existing sewers prior to the installation of any sewer pipe. New pipe shall be plugged with mechanical plugs until further connection is necessary.
- B. Connection of new sewer mains and/or trunk sewers to existing lines up to and including forty eight (48) inches in diameter shall be made at existing manholes or by constructing a new manhole over the point of connection, or by removing an existing rodding inlet or plug and extending new pipe of the same diameter, material and class from the point of connection.
 - 1. Where the connection is to be made into an existing manhole, the Contractor shall make the connection by core-drilling through the manhole shelf to the existing channel, installing the new pipe, finishing a new channel within the manhole and repairing any damage to the structure.
 - 2. Where the connection is to be made by constructing a new manhole on an existing sewer, the manhole and new connection shall conform to the details shown in the Standard Drawings. The existing sewer shall be kept intact until immediately before the cleaning and flushing operation for the new sewer is to begin.
 - 3. Where the connection is to be made at a removed rodding inlet or plug, the existing piping shall be cut square and ends properly prepared for the connection shown and an air test fitting shall be installed at the connection of new and existing pipelines.
 - 4. All new pipe shall be plugged with an approved mechanical plug or brick/mortar until the line is completed and ready for testing.
- C. Side Sewer Connections to Main Sewers:

1. Side sewer connections shall be made with fittings or adapters recommended by the manufacturer for use with the particular pipe and as specified herein.
2. Side sewers equal in size to the main sewer shall be connected by installing a wye branch.
3. Connection and side sewer details shall conform to the requirements shown in the Standard Drawings.
4. Side sewer/lateral connections to new or existing manholes shall be approved by the City and shall be in accordance with the Standard Drawings.
5. Side sewer connections to existing piping where wye fittings were not installed during main sewer construction shall be made by installing a main sewer repair spool (pipeline point repair) with a new wye fitting, as shown in the Standard Details.
6. Connections to existing sewer mains 10-inch or larger may be with a tap connection if approved by the City. Installation of taps shall comply with the following requirements:
 - a. Only pre-qualified Contractors shall be permitted to install tap and saddle connections.
 - b. Before commencing excavation for tap installation, the Contractor shall have sufficient backfill material at the site to properly re-bed the main and lateral sewers, and backfill the excavation.
 - c. The excavation for the tapping work shall be a minimum of two (2) feet in width, give enough length for work space, without under-cut sides and shall be properly shored in conformance with Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**. A minimum clearance of three (3) inches below, six (6) inches on each side and twelve (12) inches each way along the main from the point of connection shall be provided for tap installation.
7. If the main sewer is damaged during excavation for or during installation of the tap, the Contractor shall install a main sewer repair spool (replacement pipe section) as specified herein, including a new wye branch or tee fitting.
8. The outer surface of the main in this exposed area shall be thoroughly cleaned prior to tapping.

3.04 REPAIRS TO EXISTING SIDE SEWERS AND MAINS

- A. Repairs to main sewers and side sewers shall be as shown in the Standard Details.
- B. When repair of a damaged section of pipe is required within eighteen (18) inches of a pipe joint, the replacement section shall extend to and include the joint.
- C. Where repair couplings are permitted, couplings shall be as specified herein.

- D. The City Inspector may require replacement of broken, damaged or improper pipe or fittings discovered during sewer repair or replacement work.

3.05 REPAIRS TO NEW SEWER MAINS

- A. If damage to the new main sewer pipe is identified during inspection, testing or televising, the Contractor shall repair the damage or replace the pipe as instructed by the Inspector. When repair of a damaged section of pipe is required within eighteen (18) inches of a pipe joint, the replacement section shall be extended to include the joint. Repair procedures shall comply with the following:
- B. PVC C900/C905 SEWER MAINS - PVC double bell repair couplings shall be used. Coupling material shall be PVC C900/905 and shall include a stop centered in the coupling. The damaged pipe shall be removed by squarely cutting out the damaged section, and the remaining ends shall be beveled. The replacement pipe shall be a minimum of three (3) feet in length and shall be squarely cut approximately one-half (1/2) inch shorter than the missing section, and its ends shall be beveled. Reference lines indicating the spigot stab distance required for centering the repair coupling shall be clearly marked on all cut ends. The repair couplings shall be placed onto the pipe ends, the replacement assembly inserted into the gap, the repair couplings moved to be centered over each new joint. The Contractor shall re-bed the pipe and backfill the excavation with properly compacted bedding and backfill material in accordance with Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**.

3.06 TESTING

- A. Testing of new sewer piping shall be in accordance with Section 02737, **SANITARY SEWER SYSTEM TESTING**.

PART 4 - 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.

The Contract Unit Price paid for **Remove and Replace Existing SS by Open Trench** shall be paid per the linear foot. The lengths shall be measured from centerline of manhole, or structure, to centerline of manhole, or structure and through casings. No deductions will be made from horizontal length. No measurement will be made or included for surplus pipe (wastage) remaining because of Contractors need to cut standard lengths to fit field conditions. No Payment shall be made for repair of sewer facilities which are not in conflict with the proposed improvements, and are damaged by the Contractor's operation (trenching, etc.). The prices of installation shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved including pipe, utility locating and potholing, excavation, removal of existing concrete slurry backfill, removal of existing pipe, CLSM, disposal of waste material, sewer lateral reconnections, dewatering, verifying if laterals are live or abandoned, reshaping of existing manhole base, connections to manholes, trench dams, reducers, couplings, connections to existing pipe, tracer wire, backfill material and compaction testing, installation of sanitary sewer sleeves where required, all AC/PCC pavement or

sidewalk/curb & gutter restoration, removal of PCC, pavement striping, pipe testing, pre- and post-video inspection, clean-up, and all other incidentals required to construct the pipe system complete in place as shown on the Plans, as specified and as directed by the Engineer.

The Contract Unit Price paid for **Construct New SS by Open Trench** shall be paid per the linear foot. The lengths shall be measured from centerline of manhole, or structure, to centerline of manhole, or structure and through casings. No deductions will be made from horizontal length. No measurement will be made or included for surplus pipe (wastage) remaining because of Contractors need to cut standard lengths to fit field conditions. No Payment shall be made for repair of sewer facilities which are not in conflict with the proposed improvements, and are damaged by the Contractor's operation (trenching, etc.). The prices of installation shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved including pipe, utility locating and potholing, excavation, removal of existing concrete slurry backfill, CLSM, disposal of waste material, sewer lateral reconnections, verifying if laterals are live or abandoned, dewatering, reshaping of existing manhole base, connections to manholes, trench dams, reducers, couplings, connections to existing pipe, tracer wire, backfill material and compaction testing, installation of sanitary sewer sleeves where required, all AC/PCC pavement or sidewalk/curb & gutter restoration, removal of PCC, pavement striping, pipe testing, pre- and post-video inspection, clean-up, and all other incidentals required to construct the pipe system complete in place as shown on the Plans, as specified and as directed by the Engineer.

The Contract Unit Credit for **Credit to City for Supplying 24-Inch HDPE Pipe** shall be paid per the linear foot. The lengths shall be measured from centerline of manhole, or structure, to centerline of manhole, or structure and through casings. If the City procures the 24-inch HDPE to be used for this project, the Contractor shall provide a credit to use this pipe for the sewer replacement. This is for pipe **only** and does not include tools, equipment, electrofusion couplings, other incidentals and for doing all work involved as part of installation of the pipe. Credit Bid Item is revocable if City does not procure any 24-inch HDPE pipe.

*****END OF SECTION*****

PART 1 - SECTION 15064

POLYVINYL CHLORIDE (PVC) PIPE

PART 1 - GENERAL

1.01 THE SUMMARY

The Contractor shall furnish and install PVC pipe and all appurtenances as specified, complete and in place, as shown on the plans, as specified herein.

1.02 RELATED SECTIONS

- A. Section 02200, **TRENCHING, EXCAVATION, SHORING AND BACKFILL**
- B. Section 02600, **SIDE SEWERS**
- C. Section 02737, **SANITARY SEWER SYSTEM TESTING**
- D. Section 15050, **GENERAL PIPING**

1.03 REFERENCE SPECIFICATIONS

- A. Commercial Standards:
 - 1. AWWA C900-07 Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm through 300 mm), for Water Transmission and Distribution
 - 2. AWWA C905-08 Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 48 In. (350 mm Through 1,200 mm), for Water Transmission and Distribution
 - 3. ASTM D 1784 Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
 - 4. ASTM D 2241 Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR-Series)
 - 5. ASTM D 2321 Practice for Underground Installation of Thermoplastic Sewer Pipe for Sewers and Other Gravity-Flow Applications
 - 6. ASTM D 3034 Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
 - 7. ASTM F 477 Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
 - 8. ASTM F 1674 Test Method for Joint Restraint Products

1.04 NOT USED

1.05 SUBMITTALS

- A. Submittals for items specified herein shall be submitted by the Contractor and shall be in accordance with the "Submittals" subsection of the Special Provisions. Submittals shall be provided to confirm that materials to be used comply with information specified herein.
- B. Submit list of pipe and fittings to be used, which includes the following information, where applicable:
 - 1. List of Pipe Fittings to be used
 - 2. Manufacturer(s)
 - 3. Model Number, if applicable
 - 4. Size and Schedule
 - 5. Material
 - 6. Pressure Rating
 - 7. Catalog Data
 - 8. Drawings
- C. Certificates and Compliance. Certificates of compliance shall be provided for all products and materials proposed to be used under this Section as specified in the referenced standards.
- D. All expenses incurred in making samples for certification of tests shall be borne by the Contractor.

1.06 QUALITY ASSURANCE

- A. Except as modified in this Section, all materials used in the manufacture or installation of the pipe shall be tested in accordance with the requirements of the referenced standards.

1.07 DELIVERY, STORAGE AND HANDLING

- A. All plastic materials, including PVC piping, shall not be stored in direct sunlight.

PART 2 - PRODUCTS

2.01 GENERAL

PVC piping shall be used where indicated in the project Contract Documents. All PVC pipe shall be continuously and permanently marked with the manufacturer's name, pipe size and pressure rating in psi in conformance with the appropriate ASTM.

2.02 PVC SEWER MAIN PIPING (C900/C905 PVC)

- A. All PVC main piping shall be rated for 150 psi minimum working pressure. It shall conform to AWWA C900 or C905 DR18.
- B. Pipe shall be white or green, for wastewater service.
- C. All rubber rings shall be furnished by the pipe manufacturer. These rubber rings (elastomeric gaskets) shall be manufactured to conform with the requirements of ASTM F477.
- D. Bending of pipe shall not exceed recommendations of AWWA or manufacturer's printed recommendations.
- E. All fittings for PVC pipe shall conform to the requirements of ASTM D 2241. The ring groove and gasket ring shall be compatible with PVC pipe ends.

2.03 SIDE SEWER PIPING

- A. Gravity Side Sewers
 - 1. PVC piping for gravity side sewers (laterals) shall be C900 PVC DR18, as specified above and required in Section 02600, **SIDE SEWERS**.

PART 3 - EXECUTION

3.01 GENERAL

- A. Sewer pipelines shall be constructed in compliance with the requirements of this Section and of Section 15050, **GENERAL PIPING**.
- B. Work shall meet the specified requirements of these Specifications unless the requirements of the local agency having jurisdiction are greater, in which case the greater requirements shall govern.
- C. Where plastic pipe passes through walls, wall penetrations shall be made as shown on the Standard Details or Construction Documents.

3.02 INSTALLATION

PVC pipe shall be installed in accordance with the requirements of ASTM D 2321; as specified herein and shown on the plans. Underground installation of PVC pipe, fittings and valves shall be as specified herein and ASTM D2774.

3.03 HORIZONTAL CURVES

- A. Bending of pipe shall not exceed recommendations of AWWA or manufacturer's printed recommendations.

3.04 FIELD JOINTING

- A. pipe compression type joint shall be joined with a lock-in rubber ring and a ring groove that is designed to resist displacement during pipe insertion.
- B. The ring and the ring seat inside the bell shall be wiped clean before the gasket is inserted. A thin film of lubricant shall be applied to the exposed surface of the ring and to the outside of the clean pipe end. Lubricant other than that furnished with the pipe shall not be used.
- C. Joints shall not be deflected either vertically or horizontally in excess of the printed recommendations of the pipe manufacturer.

3.05 TESTING

- A. Testing of installed PVC piping shall be in accordance with Section 02737, **SANITARY SEWER SYSTEM TESTING.**

PART 4 - 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 15066

HIGH DENSITY POLYETHYLENE (HDPE) PIPE

PART 1 - GENERAL

1.01 SUMMARY

- A. The Contractor shall furnish and install high-density polyethylene pipe (HDPE) and all appurtenances as specified, complete in place, as shown on the plans, as specified in this Section and in the Section specifically associated with the installation method to be used.
- B. HDPE pipe and fittings specified herein shall be used only in association with pipe bursting, and pipe reaming construction methods, unless otherwise indicated in the Drawings or approved by the City.

1.02 RELATED SECTIONS

- A. Section 02345, **PIPE BURSTING**
- B. Section 15050, **PIPING, GENERAL**

1.03 REFERENCE SPECIFICATIONS

- A. Commercial Standards:
 - 1. ASTM D 638 Test Method for Tensile Properties of Plastics
 - 2. ASTM D 696 Test Method for Coefficient of Linear Thermal Expansion of Plastics
 - 3. ASTM D 746 Test Method for Brittleness Temperature of Plastics and Elastomers by Impact
 - 4. ASTM D 1238 Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer
 - 5. ASTM D 1248 Specification for Polyethylene Plastics Molding and Extrusion Materials
 - 6. ASTM D 1505 Test Method for Density of Plastics by the Density-Gradient Technique
 - 7. ASTM D 1525 Test Method for Vicat Softening Temperature of Plastics
 - 8. ASTM D 1693 Test Method for Environmental Stress-Cracking of Ethylene Plastics
 - 9. ASTM D 2240 Test Method for Rubber Property - Durometer Hardness
 - 10. ASTM D 2837 Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials

11. ASTM D 3350 Specification for Polyethylene Plastics Pipe and Fittings Materials
12. ASTM F 585 Practice for Insertion of Flexible Polyethylene Pipe into Existing Sewers
13. ASTM F 714 Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter
14. PLASTICS PIPE Renewing Sewers with Polyolefin Pipe Industry (PPI)

1.04 NOT USED

1.05 SUBMITTALS

- A. Submittals for items specified herein shall be submitted by the Contractor and shall be in accordance with the "Submittals" subsection of the Special Provisions. Submittals shall be provided to confirm that materials to be used comply with information specified herein.
- B. Submit list of pipe and fittings to be used, which includes the following information, where applicable:
 1. List of Pipe Fittings to be used
 2. Manufacturer(s)
 3. Model Number, if applicable
 4. Size and Schedule
 5. Material
 6. Pressure Rating
 7. Catalog Data
 8. Drawings
- C. Certificates and Compliance. Certificates of compliance shall be provided for all products and materials proposed to be used under this Section as specified in the referenced standards.
- D. Submit the following
 1. The Contractor shall submit a copy of the technician's certification for the operation of the fusion equipment.
 2. The Contractor shall perform trial fusion welds and submit samples to the Engineer for review prior to installation of the pipe. Full penetration welds shall provide a homogeneous material across the cross section of the weld. The fusion machine employed for the trial welds shall be the same machine to be utilized for the installation work.
 3. Fusion equipment shall be operated only by technicians who have been certified by the pipe manufacturer or supplier and who have a minimum of three (3) years of experience fusion welding 4-inch or larger diameter

HDPE pipelines and the use of a Data Logger for monitoring of pressure, temperature and time of each weld.

- E. All expenses incurred in making samples for certification of tests shall be borne by the Contractor.

1.06 QUALITY ASSURANCE

- A. Except as modified in this Section, all materials used in the manufacture or installation of the pipe shall be tested in accordance with the requirements of these Specifications.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. The Contractor shall exercise special care during the unloading, handling, and storage of all polyethylene pipe to ensure that the pipe is not cut, gouged, scored or otherwise damaged. Any pipe segment which has cuts in the pipe wall exceeding 10 percent of the wall thickness shall be cut out and removed from the site at the Contractor's cost. The pipe shall be stored so that it is not deformed axially or circumferentially.
- B. All pipe without an ultraviolet inhibitor shall not be stored uncovered outside.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Referenced pipe sizes are nominal pipe diameters.

2.02 PIPING MATERIALS

- A. Pipe and fittings shall be high density, high molecular weight polyethylene with a cell classification of 345434D, as defined in ASTM D 3350. In addition, the material shall be listed by the Plastic Pipe Institute with a designation of PE 3408 and shall be classified as a Type III, Class C, Category 5, Grade P34 material, as defined in ASTM D 1248.
- B. Pipe Color (inside and outside) shall be grey.
- C. Fittings shall be of the same material and class as the pipe. Identification of pipe and fittings shall be in accordance with ASTM D 3350. Pipe and fittings shall be made from virgin material. No rework compound, except that obtained from the manufacturers own production of the same formulation, shall be used. Pipe and fittings shall be homogeneous throughout and shall be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.
- D. Dimensions of pipe and fittings shall be in accordance with ASTM F 714. Pipe and fittings shall be at minimum SDR 17 for gravity sewer mains. Cast iron/ ductile iron outside diameter shall be provided where required in the Contract Documents.

Pipe and fittings shall have a minimum pressure rating of one hundred (100) psi at seventy three and four-tenth degrees Fahrenheit (73.4°F).

E. The physical properties of the pipe and fittings material shall be as follows:

PROPERTY	TEST METHOD	VALUE
Density	ASTM D 1505	0.955 gm/cc
Melt Index	ASTM D 1238	0.14 gm/10 min
Environmental Stress-Cracking Resistance ^a	ASTM D 1693	> 5,000 hr > 800 hr
Tensile Strength, Yield ^b	ASTM D 638	3,200 psi
Elongation at Break ^c	ASTM D 638	> 750 percent
Vicat Softening Temperature	ASTM D 1525	257° F
Brittleness Temperature	ASTM D 746	< -180° F
Flexural Modulus	ASTM D 3350	125,000 psi
Modulus of Elasticity	ASTM D 638	105,000 psi
Hardness	ASTM D 2240	65 Shore D
Coefficient of Linear Thermal Expansion ^d	ASTM D 696	8.3x10 ⁻⁵ in/in/°F 1.2x10 ⁻⁴ in/in/°F
Long Term Strength ^e	ASTM D 2837	1,600 psi 800 psi

a - Condition A, B & C @ 0°F; Compressed Ring @ 50°F

b - Type IV specimen

c - Type IV specimen

d - Molded specimen; Extruded pipe

e - @ 73°F; @ 140°F

2.03 MARKINGS

A. Pipe materials shall be legibly marked by the pipe manufacturer. The following shall be printed on the pipe:

1. Name and trademark of manufacturer.
2. Nominal pipe size.
3. Dimension Ratio (DR).
4. The letters PE followed by the polyethylene grade per ASTM D1248, followed by the Hydrostatic Design Basis in hundreds of psi.
5. Manufacturing Standard Reference.
6. A production code from which the date and place of manufacture can be determined.

2.04 JOINTS

A. Joints in HDPE pipe shall be made using thermal butt-fusion welding equipment designed for the specific purpose of permanently connecting HDPE pipes. This equipment shall be capable of squarely facing the pipe ends to be joined, properly heating each pipe end to the temperature range specified by the pipe manufacturer, and applying and sustaining the appropriate pressure, as

recommended by the pipe manufacturer. Test joints may be requested at the Inspector's discretion to ensure the quality of the joints.

- B. For main sewer installation, the butt-fusion welding machine shall be outfitted with a measuring and recording unit that documents the conditions existing during the fusion of each individual weld. A printout that includes the date and time each joint was made, the joint number, the initials of the machine operator, the plate temperature at the time of mating, the pressure during the heating cycle, the time period for the heating cycle, the pressure during the soak cycle, and the time period of the soak cycle shall be machine-generated and delivered to the City at the end of each work shift. The recording unit shall be a **DataLogger, as manufactured by McElroy Manufacturing, Inc., or approved equal.**
- C. Fusion equipment shall be operated by technicians who have been certified by a major gas public utility or the manufacturer of the fusion equipment for operation of such equipment. A copy of the technician's certification shall be provided to the City prior to the start of the work. Furthermore, all technicians performing butt-fusion welding on this project shall have a minimum of two (2) years experience operating the same equipment used hereon.
- D. Butt-fusion welding equipment shall be as follows, or approved equal:
 - 1. McElroy No. 412 Hydraulic Fusion Machine, McElroy Manufacturing, Tulsa, Oklahoma.
 - 2. Proweld Field 12 (315)-R, Asahi/America, Malden, Massachusetts.

2.05 FITTINGS

- A. The Contractor shall provide fabricated fittings where required. Fabricated fittings shall be of the same material as, and shall have a minimum pressure rating equal to, the pipeline material. If the fitting is in-line with the pipeline (i.e., a flange adapter), then the I.D. of the fitting shall be the same as the pipe. If the fitting is off-line (i.e., a tee), then the fitting shall have an I.D. in accordance with the plans. Unless otherwise required, all fittings shall be butt-fusion welded or flanged.
- B. Terminations to pipe or fittings made of other pipe materials shall be made by using flanges. Flanges shall consist of flange adapters butt-fusion welded to the HDPE pipe end, ductile iron back-up rings with a pressure rating of at least one-hundred and fifty (150) pounds per square inch (psi), Type 316 stainless steel bolts, nuts and washers, and one eighth (1/8) inch thick, black-reinforced rubber gaskets. In no case shall threaded fittings or adapters be used to connect HDPE materials.

2.06 FIELD CLOSURE (ELECTROFUSION) COUPLINGS

- A. Field closure couplings shall be electrofusion couplings designed and manufactured in accordance with ASTM F-1055 for use with pipe conforming to ASTM D2513/3035, -714 and with Butt fittings conforming to ASTM D3261 as applicable.

- B. Electrofusion couplings shall be produced from a pre-blended virgin resin that has a PPI listing of PE3408 which complies with ASTM D3350 and shall be tested in accordance with AWWA C906 specification.
- C. The electrofusion coupling shall have the following features:
 - 1. Engineered for use on HDPE pipe
 - 2. Dual electrofusion coils
 - 3. Pressure rated for 200 psi for water
 - 4. NSF listed Resin
 - 5. Meets AWWA C906

2.07 SIDE SEWER (LATERAL) CONNECTIONS

- A. Side sewers to be connected to an HDPE sewer main line shall be connected by use of electrofusion saddles.
- B. Lateral connections to sanitary sewer mains 12 inch in diameter (nominal) or smaller shall be with an electrofusion “wye” type saddle, manufactured by Central Plastics or approved equal.
- C. Lateral connections to sanitary sewer mains greater than 12 inch in diameter (nominal) may be with a “tee” type saddle if the “wye” type electrofusion saddle is not available.

PART 3 - EXECUTION

3.01 GENERAL

- A. Sewer pipelines shall be constructed in compliance with the requirements of this Section and of Section 15050, **GENERAL PIPING**.
- B. Work shall meet or exceed the requirements of these Specifications.
- C. HANDLING AND STORAGE
- D. The Contractor shall inspect each pipe and fitting prior to butt-fusion welding and again prior to installation. Any damaged pipe or fittings shall be replaced by the Contractor.
- E. Prior to butt-fusion welding or installation, each pipe or fitting shall be thoroughly cleaned and shall be kept clean. The material used to clean the pipe and fittings shall be as recommended by the pipe manufacturer.

3.02 BUTT-FUSION WELDING

- A. Butt-fusion welds shall be performed in accordance with manufacturer's instructions. The butt-fusion welding procedures are summarized below:
 - 1. Clean each pipe end with a clean cotton cloth to remove dirt, oil, grease and other foreign materials.

2. Square (face) the mating surfaces of each of the pipes to be fused.
 3. Bring the two (2) pipe ends together and adjust the pipe locations to ensure proper alignment.
 4. Verify that the surface temperature of the heater plate is between three hundred seventy five degrees Fahrenheit (375°F) to four hundred degrees Fahrenheit (400°F) and then clean the heater surface with a clean cotton cloth.
 5. Insert the heater plate between the pipe ends, bring the ends into firm contact with the heater plate without applying pressure and achieve a proper melt pattern.
 6. After achieving the proper melt bead, remove the heater plate and quickly examine the pipe ends for complete melt.
 7. Once complete melt has been accomplished, rapidly bring the pipe ends together and apply pressure as recommended by the pipe manufacturer.
 8. Hold the pressure constant and at the proper level throughout the cooling period, for the minimum time period recommended by the pipe manufacturer or as necessary to achieve proper cooling.
- B. For main sewer installations, the Contractor shall mark each joint with the individual joint number, corresponding to the joint identification number appearing on the printout of the data logger attached to the butt-fusion welding machine. The printout shall be attached to the pipe near the joint for collection by the City.
- C. For main sewer installations, the Contractor shall remove the internal melt bead from the welded joint. Bead removal shall be accomplished in a manner that does not score or gouge the pipe.
- D. Where pipe laydown area available prevents feasibility of debearing all joints, then the City may allow non-debearing of some joints as required. In no instance will less than 200 feet between internal beads be allowed.

3.03 INSTALLATION

- A. All pipe bursting procedures that require the use of HDPE pipe shall be executed as listed in Section 02345, **PIPE BURSTING**.

3.04 PIPE DEFLECTION

- A. Horizontal curves shall be installed by forced bending of the pipe. Minimum curvature radius requirements for HDPE pipe are shown on the table below. All designs of curvilinear sewers are subject to approval by the City.

HDPE	
Pipe DR	Minimum Curve Radius
≤ 9	20 times pipe O.D.
> 9 - 13.5	25 times pipe O.D.
> 13.5- 21	27 times pipe O.D.
> 21	30 times pipe O.D.
Fitting or flange present in bend	100 times pipe O.D.

3.05 FIELD COUPLINGS

- A. Fittings/joints that are to be assembled after pipe bursting or directional drilling has been completed shall be butt fused where accessible. Electrofusion couplings shall be used as specified herein.

PART 4 - 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*****



V. CONSTRUCTION AGREEMENT

THIS PAGE INTENTIONALLY LEFT BLANK

**CONSTRUCTION SERVICES AGREEMENT BETWEEN
THE CITY OF PINOLE AND _____**

This agreement for Construction Services ("Agreement") is entered into on _____, 2023 between the CITY OF PINOLE, a municipal corporation, with offices located at 2131 Pear Street, Pinole, California ("City") and _____. ("Contractor") (together sometimes referred to as the "Parties").

WITNESSTH:

WHEREAS, Contractor and Contractor's Surety are providing the bonds attached hereto and incorporated by this reference; and

WHEREAS, City desires to contract with Contractor to perform the construction services detailed in this Agreement; and

In consideration of the mutual covenants and conditions set forth herein, the Parties agree as follows:

1. **CONTRACT DOCUMENTS.** The Contract Documents referred to herein are incorporated herein by reference as if set forth in full in this Agreement. Work called for in any one Contract Document and not mentioned in another is to be performed and executed as if mentioned in all Contract Documents. The Contract Documents shall include 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), this 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. The General Conditions shall mean and refer to the current General Conditions of the City which are incorporated herein by this reference as if set forth herein. This Agreement, and the Contract Documents, includes the exhibits to this Agreement, including Exhibit A Required Federal-Aid Contract Language (For Local Assistance Construction Projects) (Includes Form FHWA-1273 from Bid Documents), and Exhibit B Minimum Wage Rates (Federal and State Prevailing Wage Rates from Bid Documents.)
2. **AGREEMENT CONTROLS.** In the event of a conflict between the terms and conditions as set forth in this Agreement and the terms and conditions set forth in other Contract Documents, the terms and conditions set forth in this Agreement shall prevail. Unless otherwise specifically provided herein, all works and phrases defined in the General Conditions shall have the same meaning and intent in this Agreement.
3. **INDEPENDENT CONTRACTOR.** It is specifically understood and agreed by all parties hereto that Contractor is, for the purposes of this Agreement, an independent contractor and not an employee of the City. Accordingly, Contractor shall not be deemed the City's employee for any purpose whatsoever. Contractor shall not incur or have the power to incur any debt, obligation or liability whatever for or against the City.
4. **ASSIGNMENT.** This Agreement may not be assigned by Contractor, in whole or in part, without prior written consent of the City.
5. **TERMINATION.** This Agreement may not be canceled by the City at any time without penalty upon thirty (30) days' written notice. In the event of termination without fault of Contractor, the City shall pay Contractor for all services rendered prior to date of termination, and such payment shall be in full satisfaction of all services rendered hereunder.

6. **SCOPE OF CONTRACT.** Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor and material and transportation necessary to perform and complete in a good and workman like manner to the satisfaction of the City, all the work called for, and in the manner designated in, and in strict conformity with the Project entitled:

Project Name:

Project No.:

Federal Project No.:

7. **CONTRACT AMOUNT AND PAYMENTS.** The City agrees to pay and Contractor agrees to accept, in full payment for the above work, _____ (\$_____) as stipulated sum price which Contractor bid in its Bid Form, subject to additions and deductions by Change Order(s) as provided in the General Conditions. Contractor is solely responsible for the payment of employment taxes incurred under this Agreement and any similar federal or state taxes.

8. **PROGRESS AND FINAL PAYMENTS.** Progress and final payments shall be in accordance with the General Conditions.

9. **RETENTION OF SUMS CHARGED AGAINST CONTRACTOR.** When, under the provisions of this Contract, the City is authorized to charge any sum of money against Contractor, the City may deduct and retain the amount of such charge from the amount of the next succeeding progress estimate, or from any other moneys due or that may become due to the Contractor from the City. If, on completion or termination of the Contract, sums due contractor are insufficient to pay the City's charges against Contractor, the City shall have the right to recover the balance from Contractor or his sureties.

10. **TIME OF COMPLETION.** The entire work shall be completed to the satisfaction of the City within _____ (_____) working days, commencing on the date of issuance of the Notice to Proceed. Failure to complete the entire work by the completion date and in the manner provided for by the Contract Documents shall subject Contractor to liquidated damages as hereinafter provided in this Agreement. Time is of the essence in these Contract Documents.

11. **PROJECT SITE.** Contractor shall perform the Services in such a manner as to cause a minimum of interference with City's operations and the operations of other contractors at each Project site and to protect all persons and property thereon from damage or injury. Upon completion of the Services at a Project site, Contractor shall leave such Project site clean and free of all tools, equipment, waste materials and rubbish. Each Project site may include all buildings, offices, and other locations where Services are to be performed, including any access roads. Contractor shall be solely responsible for the safe transportation and packing in proper containers and storage of any equipment required for performing the Services, whether owned, leased or rented. City will not be responsible for any such equipment which is lost, stolen or damaged or for any additional rental charges for such equipment. Equipment left or stored at a Project site, with or without permission, is at Contractor's sole risk. City may assume that anything left on the work site an unreasonable length of time after said work is completed has been abandoned. Any transportation furnished by City shall be solely as an accommodation and City shall have no liability therefore. Contractor acknowledges and agrees that it shall assume the risk and is solely responsible for its use of any City owned equipment and property provided by City for the performance of Services. City shall have no liability to Contractor therefore. In addition, Contractor further acknowledges and agrees that it shall assume the risk and is solely responsible for its owned, non-owned and hired automobiles, trucks or

other motorized vehicles as well as any equipment, tolls, or other property which is utilized by Contractor on each Project site.

12 INSURANCE REQUIREMENTS. Before beginning any work under this Agreement, Contractor, at its own cost and expense, shall procure the types and amounts of insurance listed below and maintain that insurance throughout the term of this Agreement. The cost of such insurance shall be included in the Contractor's bid or proposal. Contractor shall be fully responsible for the acts and omissions of its subcontractors or other agents.

12.1 Workers' Compensation. If Contractor employs any person, Contractor shall maintain Statutory Workers' Compensation Insurance and Employer's Liability Insurance for any and all persons employed directly or indirectly by Contractor in the amount required by applicable law. The requirement to maintain Statutory Workers' Compensation and Employer's Liability Insurance may be waived by the City upon written verification that Contractor is a sole proprietor and does not have any employees and will not have any employees during the term of this Agreement.

California Labor Code Sections 1860 and 3700 provide that every contractor will be required to secure the payment of compensation to its employees. In accordance with the provisions of California Labor Code Section 1861, the Contractor hereby certifies as follows:

"I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract."

12.2 General Liability and Automobile Liability Insurance.

12.2.1 General requirements. Contractor, at its own cost and expense, shall maintain commercial general and automobile liability insurance for the term of this Agreement in an amount not less than TWO MILLION DOLLARS (\$2,000,000) per occurrence and FOUR MILLION DOLLARS (\$4,000,000) aggregate, combined single limit coverage for risks associated with the work contemplated by this Agreement.

12.2.2 Minimum scope of coverage. Commercial general coverage shall be at least as broad as Insurance Services Office Commercial General Liability occurrence form CG 0001 (most recent edition) covering comprehensive General Liability on an "occurrence" basis. Automobile coverage shall be at least as broad as Insurance Services Office Automobile Liability form CA 0001 (most recent edition) covering any auto (Code 1), or if Contractor has no owned autos, hired (code 8) and non-owned autos (Code 9). No endorsement shall be attached limiting the coverage.

12.2.3 Additional requirements. Each of the following shall be included in the insurance coverage or added as a certified endorsement to the policy:

- a. The Commercial General and Automobile Liability Insurance shall cover on an occurrence basis.

- b. City, its officers, officials, employees, agents, and volunteers shall be covered as additional insureds for liability arising out of work or operations on behalf of the Contractor, including materials, parts, or equipment furnished in connection with such work or operations; or automobiles owned, leased, hired, or borrowed by the Contractor. Coverage can be provided in the form of an endorsement to the Contractor's insurance at least as broad as CG 20 10 11 85, or both CG 20 10 10 01 and CG 20 37 10 01.
- c. For any claims related to this Agreement or the work hereunder, the Contractor's insurance covered 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 non-contributing.
- d. The policy shall cover inter-insured suits and include a "separation of Insureds" or "severability" clause which treats each insured separately.
- e. Contractor agrees to give at least 30 days prior written notice to City before coverage is canceled or modified as to scope or amount.

12.3 General Liability/Umbrella Insurance. The coverage amounts set forth above may be met by a combination of underlying and umbrella policies so long as in combination the limits equal or exceed those stated.

12.4 Professional Liability Insurance.

12.4.1 General requirements. Contractor, at its own cost and expense, shall maintain for the period covered by this Agreement professional liability insurance for licensed professionals performing work pursuant to this Agreement in an amount not less than ONE MILLION DOLLARS (\$1,000,000) per occurrence or claim covering the Contractor's errors and omissions.

12.4.2 Claims-made limitations. The following provisions shall apply if the professional liability coverage is written on a claims-made form:

- a. The retroactive date of the policy must be shown and must be before the date of the Agreement.
- b. Insurance must be maintained and evidence of insurance must be provided for at least five (5) years after completion of the Agreement or the work.
- c. If coverage is canceled or not renewed and it is not replaced with another claims-made policy form with a retroactive date that precedes the date of this Agreement, Contractor must provide extended reporting coverage for a minimum of five (5) years after completion of work under this Agreement.
- d. A copy of the claim reporting requirements must be submitted to the City prior to the commencement of any work under this Agreement.

12.5 All Policies Requirements.

12.5.1 Acceptability of insurers. All insurance required by this section is to be placed with insurers with a Bests' rating of no less than A:VII.

12.5.2 Verification of Coverage. Prior to beginning any work under this Agreement, Contractor shall provide City with (1) certified Certification of Liability Insurance that demonstrates compliance with all applicable insurance provisions contained herein; and (2) additional insured endorsement as required for the general commercial and automobile liability policies.

12.5.3 Notice of Reduction in or Cancellation of Coverage. A certified endorsement must be attached to all insurance obtained in accordance with this Agreement stating that coverage shall not be suspended, voided, canceled by either party, or 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. In the event that any coverage required by this section is reduced, limited, cancelled, or materially affected in any other manner, Contractor shall provide written notice to City at Contractor's earliest possible opportunity and in no case later than ten (10) working days after Contractor is notified of the change in coverage.

12.5.4 Additional insured; primary insurance. A certified endorsement at least as broad as Insurance Services Office form number CG 20 10 (11/85 ed.) shall be attached to all policies stating that the City and its officers, employees, agents, and volunteers shall be covered as additional insureds with respect to each of the following: liability arising out of activities performed by or on behalf of Contractor, including the insured's general supervision of Contractor; products and completed operations of Contractor, as applicable; premises owned, occupied, or used by Contractor; and automobiles owned, leased, or used by the Contractor in the course of providing services pursuant to this Agreement. The coverage shall contain no special limitations on the scope of protection afforded to City or its officers, employees, agents, or volunteers.

A certified endorsement shall be attached to all policies stating that coverage is primary insurance with respect to the City and its officers, officials, employees and volunteers, and that no insurance or self-insurance maintained by the City shall be called upon to contribute to a loss under the coverage.

12.5.5 Deductibles and Self-Insured Retentions. Contractor shall disclose to and obtain the approval of City for the self-insured retentions and deductibles before beginning any of the services or work called for by any term of this Agreement. Insurance obtained by the Contractor shall have a self-insured retention or deductible of no more than ONE HUNDRED THOUSAND DOLLARS (\$100,000).

During the period covered by this Agreement, only upon the prior express written authorization of Contract Administrator, Contractor may increase such deductibles or self-insured retentions with respect to City, its officers, employees, agents, and volunteers. The Contract Administrator may condition approval of an increase in deductible or self-insured retention levels with a requirement that Contractor

procure a bond, guaranteeing payment of losses and related investigations, claim administration, and defense expenses that is satisfactory in all respects to each of them.

12.5.6 Subcontractors. Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and certified endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

12.5.7 Variation. The City may approve a variation in the foregoing insurance requirements, upon a determination that the coverage, scope, limits, and forms of such insurance are either not commercially available, or that the City's interests are otherwise fully protected.

12.5.8 Wasting Policies. No policy required herein shall include a "wasting" policy limit (i.e. limit that is eroded by the cost of defense).

12.5.9 Excess Insurance. If Contractor maintains higher insurance limits than the minimums specified herein, City shall be entitled to coverage for the higher limits maintained by the Contractor.

12.5.10 Remedies. In addition to any other remedies City may have if Contractor fails to provide or maintain any insurance policies or policy endorsements to the extent and within the time herein required, City may, at its sole option exercise any of the following remedies, which are alternatives to other remedies City may have and are not the exclusive remedy for Contractor's breach:

- Obtain such insurance and deduct and retain the amount of the premiums for such insurance from any sums due under the Agreement;
- Order Contractor to stop work under this Agreement or withhold any payment that becomes due to Contractor hereunder, or both stop work and withhold any payment, until Contractor demonstrates compliance with the requirements hereof; and/or
- Terminate this Agreement.

12.6 Waiver of Subrogation. Contractor agrees to waive subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss. Contractor agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation. The Workers' Compensation policy shall be endorsed with a waiver of subrogation in favor of City for all work performed by Contractor, its employees, agents and subcontractors.

13 NO WAIVER OF REMEDIES. Neither the inspection by the City or its agents, nor any order or certificate for the payment of money, nor any payment for, nor acceptance of the whole or any part of the work by the City, nor any extensions of time, nor any position taken by the City or its agents shall operate as a waiver of any provision of this Agreement

or of any power herein reserved to the City or any right to damages herein provided, nor shall any waiver of any breach of the Agreement be held to be a waiver of any other or subsequent breach. All remedies provided in this Agreement shall be taken and construed as cumulative; that is, in addition to each and every other remedy herein provided, and the City shall have any and all equitable and legal remedies which it would in any case have.

- 14** **DETERMINATION OF DAMAGES.** The actual fact of the occurrences of damages and the actual amount of the damages which the City would suffer if the work were not completed within the specified times set forth are dependent upon many circumstances and conditions and, it is impracticable and extremely difficult to fix the actual damages. Damages which the City would suffer in the event of delay include loss of the use of the project, and, in addition, expenses of prolonged employment of an architectural and engineering staff; costs of administration, inspection, and supervision; and the loss suffered by the public within the City by reasons of the delay in the completion of the project to serve the public at the earliest possible time. Accordingly, the parties hereto agree, and by execution of this Agreement, Contractor acknowledges that he/she understands, has ascertained and agrees, that the amounts set forth herein as liquidated damages shall be presumed to be that amount of damages sustained by the failure of Contractor to complete the entire work within the times specified.
- 15** **LIQUIDATED DAMAGES.** The amount of the liquidated damages to be paid by Contractor to the City for failure to complete the entire work in the specified number of Working or Calendar Days (as extended, if applicable) will be _____ (\$_____) for each **Calendar Day**, continuing to the time at which the work is completed. Such amount is the actual cash value agreed upon as the loss to the City resulting from Contractor's delay.
- 16** **TERMINATION AFTER ALLOTTED WORKING OR CALENDAR DAYS.** In addition to any rights it may have, the City may terminate this Contract at any time after the allotted number of Working or Calendar Days as adjusted by any extensions of time for excusable delays that may have been granted. Upon such termination, Contractor shall not be entitled to receive any compensation for services rendered by him before or after such termination, and he shall be liable to the City for liquidated damages for all periods of time beyond such termination date until the work is completed.
- 17** **CONTRACT BANKRUPT.** If Contractor should commence any proceeding under the Bankruptcy Act, or if Contractor be adjudged a bankrupt, or if Contractor should make any assignment for the benefit of creditors, or if a receiver should be appointed on account of Contractor's insolvency, then the City may, without prejudice to any other right or remedy, terminate the Contract and complete the work by giving notice to Contractor and his surety according to the provisions of Section 1-15 of the General Conditions. The City shall have the right to complete, or cause completion of the work, all as specified in the General Provisions of the Standard Specifications.
- 18** **PERFORMANCE AND PAYMENT BONDS.** The Contractor shall, before beginning said work, file two bonds with the City, each made payable to the City. These bonds shall be issued by a Surety Company authorized to do business in the State of California, and shall be maintained during the entire life of the Contract at the expense of the Contractor.

- a) One bond shall be in the amount of one hundred percent (100%) of the Contract and shall guarantee the Faithful Performance of the Contract.
- b) The second bond shall be the Payment Bond required by Part 4, Title 15, Chapter 7, Division Three of the Civil Code of the State of California and shall be in the amount of one hundred percent (100%) of the Contract.

Any alteration or alterations made in any provision of this Contract shall not operate to release any surety from liability on any bond required hereunder and the consent to make such alterations is hereby given, and any surety on said bonds hereby waives the provisions of Section 2819 of the Civil Code.

Bonds shall only be accepted from an "Admitted surety insurer," which means an insurer to which the Insurance Commissioner has issued a certificate of authority to transact surety insurance in this state. **Contractor must submit** the original, or a certified copy, of the unrevoked appointment, power of attorney, bylaws or other instrument entitling or authorizing the person who executed the bond to do so.

All bonds submitted shall include the following:

1. Full name and address of the Contractor Surety, and the City;
2. Contract Date;
3. Exact Contract Sum;
4. Project Name and Address;
5. Signature of the Contractor
6. Corporate Seal, if applicable;
7. Signature of Authorized Surety Representative;
8. Notarization of the Contractor and Surety;
9. Power of Attorney; and
10. Local contact for surety, with name, phone number, and address to which legal notices may be sent.

19 **SUBSTITUTION OF SECURITIES OF MONEY WITHHELD.** At any time prior to final payment, Contractor may request substitution of securities for any money withheld by the City to ensure performance of the Contract. At the expense of the Contractor, securities equivalent to the money withheld may be deposited with the City or with an approved financial institution as escrow agent according to a separate Security Agreement. Securities eligible for substitution shall include those listed in Section 16430 of the Government Code or bank or savings and loan certificates of deposit.

20 **GENERAL LIABILITY OF THE CONTRACTOR.** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, light, heat, utilities, transportation and other facilities and services necessary for the execution and completion of the Work in accordance with the Contract Documents and any applicable code or statute, whether or not specifically described herein, as long as same is reasonably inferable therefrom as being necessary to produce the intended results, whether temporary or permanent, and whether or not incorporated or to be incorporated in the Work. The mention of any specific duty or liability of Contractor and, any reference to any specific duty or liability shall be construed to be for the purpose of explanation.

21

AUTHORITY OF THE CITY. The City will decide all questions regarding the quality and acceptability of materials furnished, work performed, and rate of progress of the Work. The City will decide all questions regarding the interpretation and fulfillment of the Contract on the part of the Contractor, and all questions as to the rights of different prime contractors involved with the Work. The City will determine the amount and quality of the Work performed and materials furnished for which payment is to be made under the Contract.

The City will administer its authority through a duly designated representative identified at the pre-construction conference. The Contractor and City's designated representative (the Owner's Representative) shall make good faith attempts to resolve disputes that arise during the performance of the Work.

Any order given by the City not otherwise required by the Contract to be in writing shall be given or confirmed by the City in writing at the Contractor's request. Such request shall state the specific subject of the decision, order, instruction, or notice and, if it has been given orally, its date, time, place, author and recipient.

Any plan or method suggested to the Contractor by the ENGINEER, or any of the Owner's Representative, but not specified or required in writing, if adopted or followed in whole or in part by the Contractor, shall be used at the risk and responsibility of the Contractor. The City assumes no responsibility.

22

RESPONSIBILITY OF THE CONTRACTOR The Work shall be under the Contractor's responsible care and charge until completion and final acceptance, and the Contractor shall bear the entire risk of injury, loss, or damage to any part by any cause. The Contractor shall rebuild, repair, restore, and make good all injuries, losses or damage to any portion of the Work or the materials occasioned by any cause, and shall bear the entire expense.

The mention herein of any specific duty or responsibility imposed upon the Contractor shall not be construed as a limitation or restriction of any other responsibility or duty imposed upon the Contractor by the Contract, said reference being made herein merely for the purpose of explaining the specific duty or responsibility.

The Contractor shall do all of the work and furnish all labor, materials, tools, equipment, and appliances, except as otherwise herein expressly stipulated, necessary or proper for performing and completing the Work herein required, including any change order work or disputed work directed by the City in conformity with the true meaning and intent of the Contract Documents, within the time specified.

23

INDEMNIFICATION AND CONTRACTOR'S RESPONSIBILITIES. To the fullest extent permitted by law, the Contractor shall indemnify, defend with counsel acceptable to the City, and hold harmless the City, its officers, officials, employees, agents, and volunteers from and against any and all losses, claims, demands, damages, costs, expenses, attorney's fees, or liability of every nature arising out of or in any way connected with the performance or attempted performance of the provisions of this Contract, caused in whole or in part by any negligent or willful act or omission of the Contractor, its officers, employees, or agents, or anyone directly or indirectly acting on behalf of the Contractor, regardless of whether caused in part by a party indemnified hereunder. Nothing

contained in the foregoing indemnity provisions shall be construed to require the Contractor to indemnify the indemnified party in contravention of Section 2782 of the Civil Code for the active or sole negligence or willful misconduct of that indemnified party

To the fullest extent permitted by law, the Contractor's duty to defend shall extend, without limitation, to any suit or action founded upon any losses, claims, demands, damages, costs, expenses, attorney's fees, or liability of every nature arising out of or in any way connected with the performance or attempted performance of the provisions hereof, or in any way arising out of or connected with this Contract.

The defense and indemnity obligations expressly extend to and include any and all claims, demands, damages, costs, expenses, or liability occasioned as a result of damages to adjacent property caused by the conduct of the Work.

The defense and indemnity obligations expressly extend to and include any and all claims, demands, damages, costs, expenses, or liability occasioned as a result of the violation by the Contractor, the Contractor's agents, employees, or independent contractors, Subcontractors or suppliers of any provisions of federal, State or local law, including applicable administrative regulations.

The defense and indemnity obligations also expressly extend to and include any claims, demands, damages, costs, expenses, or liability occasioned by injury to or death of any person, or any property damage to property owned by any person while on or about the site or as a result of the Work, whether such persons are on or about the site by right or not, whenever the Work is alleged to have been a contributing cause in any degree whatsoever.

In claims against any person or entity herein indemnified that are made by an employee of the Contractor or an employee of any of the Contractor's agents, independent contractors, Subcontractors or suppliers, a person indirectly employed by the Contractor or by any of the Contractor's agents, independent contractors, Subcontractors or suppliers, or anyone for whose acts the Contractor or any of the Contractor's agents, independent contractors, Subcontractors or suppliers may be liable, the defense and/or indemnification obligation herein shall not be limited by any limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or the Contractor's agents, independent contractors, Subcontractors or suppliers under workers' compensation acts, disability acts, or other employee benefit acts.

The indemnification obligations herein shall not be limited by any assertion or finding that the person or entity indemnified is liable by reason of a non-delegable duty.

The indemnities set forth herein shall not be limited by the insurance requirements set forth in the Contract Documents.

The indemnification requirements herein set forth shall extend to claims occurring after this Contract is terminated as well as while it is in force.

In the event the Contractor enters into any agreement with the owners of any adjacent property to enter upon or adjacent to such property for the purpose of performing this Contract, the Contractor shall fully indemnify, defend and save harmless such person, firm, or corporation, State or other governmental agency which owns or has any interest in the adjacent property. The form and

content of the indemnification agreement shall be approved by the City prior to commencement of any work on or about such property. The Contractor also shall indemnify the City and other indemnities identified in this Section as provided in the Contract. These provisions shall be in addition to any other requirements of the owners of adjacent property.

24 **LEGAL REQUIREMENTS.**

- 24.1 Governing Law.** The laws of the State of California shall govern this Agreement.
- 24.2 Compliance with Applicable Laws.** Contractor and any subcontractors shall comply with all laws applicable to the performance of the work in connection with this Agreement.
- 24.3 Licenses and Permits.** Contractor represents and warrants to City that Contractor and its employees, agents, and any subcontractors have all licenses, permits, qualifications, and approvals of whatsoever nature that are legally required to practice their respective professions.
- 24.4 Nondiscrimination and Equal Opportunity.** In compliance with federal, state and local laws, Contractor shall not discriminate, on the basis of a person's race, religion, color, national origin, age, physical or mental handicap or disability, medical condition, marital status, sex, or sexual orientation, against any employee, applicant for employment, subcontractor, bidder for a subcontract, or participant in, recipient of, or applicant for any services or programs provided by Contractor under this Agreement.
- 24.5 Work Requiring Payment of Prevailing Wages.** The City affirmatively identifies this project as a "public work" as that term is defined by California Labor Code § 1720, and the project is, therefore, subject to prevailing wages under California Labor Code § 1771. In accordance with California Labor Code § 1771, not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which these services are to be performed, and not less than the general prevailing rate of per diem wages for holiday and overtime work fixed as provided in the California Labor Code shall be paid to all workers engaged in performing the services under this Agreement. Contractor and its subcontractors shall fully comply with all the provision of the California Labor Code governing the performance of public works contracts including, but not limited to, payment of prevailing wages, limitations on time worked, compliance with apprentice requirements, maintenance of payroll records, posting of wages at job site and prohibitions against discrimination.
- 24.6 Unfair Competition.** The following provision is included in this agreement pursuant to California Public Contract Code §7103.5.

"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 assigning to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) 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."

24.7 INCIDENTAL BENEFICIARIES. It is expressly understood and agreed that the enforcement of these terms and conditions shall be reserved to the City and Contractor. Nothing contained in the Agreement shall give or allow any claim or right of action whatsoever by any third person. It is the express intent of the City and Contractor that any such person or entity, other than the City and Contractor, receiving services or benefits under this Agreement shall be deemed an incidental beneficiary.

25 MODIFICATION.

25.1 Amendments. Any modification or amendment of any provision of this agreement shall be in writing and must be executed by both parties hereto.

25.2 Assignment. Contractor may not assign this Agreement or any interest therein without the prior written approval of the City.

25.3 Subcontracting. Contractor shall not subcontract any portion of the performance contemplated and provided for herein without prior written approval of the City. Where written approval is granted by the City, Contractor shall supervise all work subcontracted by Contractor in performing the Services; shall be responsible for all work performed by a subcontractor as if Contractor itself had performed such work; the subcontracting of any work to subcontractors shall not relieve Contractor from any of its obligations under this Agreement with respect to the Services; and Contractor is obligated to ensure that any and all subcontractors performing any Services shall be fully insured in all respects and to the same extent as set forth under Section 5, to City's satisfaction.

25.4 Survival. All obligations arising prior to the termination of this Agreement and all provisions of this Agreement allocating liability between City and Contractor shall survive the termination of this Agreement.

25.5 Options upon Breach by Contractor. If Contractor materially breaches any of the terms of this Agreement, City's remedies shall include, but not be limited to, the following:

25.5.1 Immediately terminate the Agreement;

25.5.2 Retain the plans, specifications, drawings, reports, design documents, and any other work product prepared by Contractor in accordance with this Agreement;

25.5.3 Retain a different Contractor to complete the Services not finished by Contractor;
or

25.5.4 Charge Contractor the difference between the costs to complete the work at the time of breach and the amount that City would have paid Contractor if Contractor had completed the Work.

26 KEEPING AND STATUS OF RECORDS.

- 26.1 Records Created as Part of Contractor's Performance.** All reports, data, maps, models, charts, studies, surveys, photographs, memoranda, plans, studies, specifications, records, files, or any other documents or materials, in electronic or any other form, that Contractor prepares or obtains in accordance with this Agreement and that relate to the matters covered under the terms of this Agreement shall be the property of the City.
- 26.2 Contractor's Books and Records.** Contractor shall maintain any and all records or documents evidencing or relating to charges for services or expenditures and disbursements charged to the City under this Agreement for a minimum of three (3) years, or for any longer period required by law, from the date of final payment to the Contractor to this Agreement.
- 26.3 Confidential Information and Disclosure.** During the term of this Agreement, either party (the "Disclosing Party") may disclose confidential, proprietary or trade secret information (the "Information"), to the other party (the "Receiving Party"). The Receiving Party shall hold the Disclosing Party's Information in confidence and shall take all reasonable steps to prevent any unauthorized possession, use, copying, transfer or disclosure of such Information. Contractor understands that City is a public City and is subject to the laws that may compel it to disclose information about Contractor's business.

27 MISCELLANEOUS PROVISIONS.

- 27.1 Attorneys' Fees.** If a Party to this Agreement brings any action, including an action for declaratory relief, to enforce or interpret the provision of this Agreement, the prevailing Party shall be entitled to reasonable attorneys' fees in addition to any other relief to which that Party may be entitled. The court may set such fees in the same action or in a separate action brought for that purpose.
- 27.2 Venue.** In the event that either Party brings any action against the other under this Agreement, the Parties agree that trial of such action shall be vested exclusively in the state courts of California in the County of Contra Costa or in the United States District Court for the Northern District of California.
- 27.3 Severability.** If a court of competent jurisdiction finds or rules that any provision of this Agreement is invalid, void, or unenforceable, the provisions of this Agreement not so adjudged shall remain in full force and effect.
- 27.4 Binding.** This Agreement shall bind and inure to the heirs, devisees, assignees and successors in interest of Contractor and to the successors in interest of the City in the same manner as if such parties had been expressly named herein.
- 27.5 Survivorship.** Any responsibility of Contractor for warranties, insurance, indemnity, record keeping or compliance with laws with respect to this Agreement shall not be invalidated due to the expiration, termination or cancellation of this Agreement.
- 27.6 No Implied Waiver of Breach.** In the event that either the City or Contractor shall at any time or times waive any breach of this Agreement by the other, such waiver shall not constitute a waiver of any other or succeeding breach of this Agreement, whether of the

same or any other covenant, condition or obligation. Waiver shall not be deemed effective until and unless signed by the waiving party.

27.7 Contract Administration. This Agreement shall be administered by the City Manager or her designee, who shall act as the City’s representative. All correspondence shall be directed to or through the representative.

27.8 Notices. Any written notice to Contractor shall be sent to:

[INSERT CONTRACTOR CONTACT INFORMATION]

Any written notice to City shall be sent to:

Andrew Murraray, City Manager
City of Pinole
2131 Pear Street
Pinole, CA 94564

27.9 Integration; Incorporation. This Agreement, including all the exhibits attached hereto, represents the entire and integrated agreement between City and Contractor and supersedes all prior negotiations, representations, or agreements, either written or oral. All exhibits attached hereto are incorporated by reference herein.

27.10 Authority to Execute. The person or persons executing this Agreement on behalf of the parties hereto warrants and represents that he/she/they has/have the authority to execute this Agreement on behalf of their entity and has/have the authority to bind their party to the performance of its obligations hereunder.

27.11 Counterparts. This agreement may be executed in one or more counterparts, each of which shall be deemed an original, and will become effective and binding upon the parties at such time as all of the signatories hereto have signed a counterpart of this Agreement. All counterparts so executed shall constitute one Agreement binding on all of the parties hereto, notwithstanding that all of the parties are not signatory to the same counterpart.

The Parties have executed this Agreement as of the date signed by the City.

CITY OF PINOLE

CONTRACTOR

Date: _____

Date: _____

Andrew Murray
City Manager

[Insert Name of Signatory]
[Insert Name of Contractor]

Dated: _____

Dated: _____

Attest:

Heather Bell
City Clerk

Dated: _____

Approved as to Form:

Eric Casher
City Attorney

Dated: _____

THIS PAGE INTENTIONALLY LEFT BLANK

EXHIBIT A

Required Federal-Aid Contract Language
(For Local Assistance Construction Projects)
(Includes Form FHWA-1273 from Bid Documents)

EXHIBIT B

Minimum Wage Rates

(Federal and State Prevailing Wage Rates from Bid Documents)



VI. APPENDICES

THIS PAGE INTENTIONALLY LEFT BLANK



April 5, 2023
File: 3492.001rptRev1.doc

West Valley Construction
2655 Stanwell Drive, Suite 215
Concord, California 94520

Attn: Daniel Wilkins, P.E.

Re: Geotechnical Investigation
City of Pinole
Pinon-1 Sewer Replacement Project
Pinole, California

Introduction

This letter summarizes the results of our Phase 1 Geotechnical Investigation for the City of Pinole's planned Pinon-1 Sewer Replacement project in Pinole, California. The general site location is shown on the attached Site Location Map on Figure 1. A Site Plan identifying the relative locations and proposed extent of the project work area is presented on Figure 2. Our services have been provided in accordance with the terms of our Agreement dated January 31, 2023. The purpose of our services is to evaluate subsurface conditions and provide geotechnical recommendations and criteria for use in project design and construction. The scope of our Phase 1 services is described in our agreement and includes subsurface exploration with ten auger borings, laboratory testing of select samples, engineering evaluation, development of geotechnical recommendations for the project, and preparation of this report. The issuance of this report completes our Phase 1 scope of services.

Project Description

The project involves upsizing approximately 5,000 linear feet of sewer along San Pablo Road and Pinon Street. Existing sewer lines range from 8- to 15-inches in diameter and we understand will increase to 16- to 30-inches. Although project plans have not yet been finalized, we anticipate that alignment depths will typically range from about 5- to 10-feet below grade and a majority of the project will likely utilize open-trench construction methods. Trenchless construction methods will likely be utilized to construct portions of the sewer line where the alignment crosses the existing railroad tracks at the north end of Pinon Street. Ancillary improvements may include rehabilitation or replacement of manholes, reconnection of existing service laterals, and local restoration of asphalt pavements and concrete flatwork, where affected by the new construction. We understand no significant new structures are planned as part of the project.

Regional Geology and Topography

The site is located within the Coast Range Geomorphic Province of California. The regional bedrock geology consists of complexly folded, faulted, sheared, and altered sedimentary, igneous, and metamorphic rock of the Jurassic-Cretaceous age (65-190 million years ago) Franciscan Complex. Northwest-southeast trending mountain ridges formed from previous tectonic activity characterize the regional topography. Extensive faulting during the Pliocene Age (1.8-7 million years ago) formed the uneven depression that is now the San Francisco Bay. More recent tectonic activity is concentrated along the San Andreas Fault zone, a complex group of generally parallel faults.

As shown on Figure 3, regional geologic mapping (Dibblee, 1981) indicates that most of the site is underlain by alluvial deposits of Holocene and Pleistocene age (map symbols Qa and Qoa, respectively) consisting of poorly sorted and poorly consolidated, sand, gravel, silt, and clay. The alignment splits between two topographic knolls of Miocene-age Marine Sedimentary Rocks (map symbol, Tmsh) which typically consist of weathered siltstone and mudstone.

Subsurface Exploration and Laboratory Testing

Subsurface exploration for the project included excavation of 10 test borings on February 6th and 7th, 2023 at the approximate locations shown on Figure 2. Borings were excavated by use of a track-mounted drill rig equipped with 4-inch solid-stem, continuous flight augers. The soils encountered were logged by our Field Geologist, who collected relatively "undisturbed" samples at select intervals for laboratory testing. Brief descriptions of the terms and methodology used in classifying earth materials are provided on the attached Soil and Rock Classification Charts, Figures A-1 and A-2, respectively. The exploratory boring logs are presented on Figures A-3 through A-12.

Laboratory testing of select soil samples included determination of moisture content, dry density, unconfined compressive strength, and fines content in general accordance with applicable ASTM standards. The results of our laboratory testing are presented on the boring logs, Figures A-3 through A-12. The subsurface exploration and laboratory testing programs are discussed in greater detail in Appendix A.

Subsurface Conditions

The results of our subsurface exploration are generally consistent with the regionally-mapped geology. Our subsurface exploration indicates that the borings along San Pablo Avenue (Boring 1 and Boring 2) are underlain by 3- to 6-feet of medium dense gravels over moderately hard sandstone bedrock that becomes more competent with depth. Borings 3 through 10 encountered interbedded layers of alluvial deposits consisting of soft to stiff, medium to high plasticity clay and silt; and loose to medium dense, silty sands and sandy gravels.

Groundwater was encountered in Boring 1 at 6.5-feet, in Boring 3 at 3.5-feet, in Boring 4 at 4.0-feet, in Boring 5 at 7.0-feet, and in Boring 6 at 7.5-feet. Groundwater was not observed in any of the other borings. However, the borings were not left open for an extended period of time so a stabilized groundwater surface may not have been observed. We anticipate that groundwater will likely be relatively shallow in these areas due to shallow bedrock and clayey layers, resulting in locally "perched" or shallow groundwater. A search of the State of California's Geotracker website indicates groundwater was monitored in October 2007 at a site located at 1007 San Pablo Avenue, located at the western end of the project. Groundwater was measured within about 1-foot of the ground surface.

Geologic Hazards Evaluation

We have evaluated potential effects of commonly-considered geologic hazards on the planned improvements and concluded that the primary geologic hazards to be considered during project design and development are strong seismic ground shaking, liquefaction, seismic densification, and settlement. Other hazards are judged relatively insignificant for this project. More detailed discussion of the primary hazards to be considered is presented below:

Seismic Shaking

The site will likely experience seismic ground shaking from future earthquakes in the San Francisco Bay Area. Earthquakes along any of several active faults in the region, as shown on Figure 4, could cause moderate to strong ground shaking at the site.

Probabilistic Seismic Hazard Analysis – Probabilistic Seismic Hazard Analysis (PSHA) analyzes all possible earthquake scenarios while incorporating the probability of each individual event to occur. The probability is determined in the form of the recurrence interval, which is the average time for a specific earthquake acceleration to be exceeded. The design earthquake is not solely dependent on the fault with the closest distance to the site and/or the largest credible magnitude, but rather the probability of given seismic events occurring on both known and unknown faults.

Per the current edition (2022) of the California Building Code (CBC) and ASCE-7 (2016), the probabilistic Maximum Considered Earthquake (MCE) is taken to be a seismic event with a 10% chance of exceedance within a 50-years period, which equates to a seismic event with a return period of 475 years. Utilizing the USGS' National Seismic Hazards Map Program 2008 Interactive Deaggregation web application¹ and estimated V_s^{30} values for generalized soil conditions encountered, we predict peak horizontal ground accelerations up to about 0.59g.

The potential for strong seismic shaking at the project site is high. Due to its proximity and historic rate of seismicity, the Hayward Fault (located less than 5 kilometers to the southwest of the nearest work areas) presents the highest potential for severe ground shaking. The most significant adverse impact associated with strong seismic shaking is potential damage to structures and improvements.

Evaluation: Less than significant with mitigation.

Mitigation: New improvements should be designed in accordance with the most recent edition (2022) of the California Building Code. If new structures are planned, we should be consulted to provide site-specific seismic design coefficients based on exact structure location and interpreted subsurface conditions. New utilities should include flexible pipe or connections that are more resistant to breakage during strong ground shaking.

¹ United States Geological Survey (2014), National Seismic Hazards Map Program 2008 Interactive Deaggregations Web Application, <http://geohazards.usgs.gov/deaggint/2008/>, accessed March, 8, 2023.

Liquefaction and Seismic Densification Potential

Liquefaction refers to the sudden, temporary loss of soil shear strength during strong ground shaking. Liquefaction-related phenomena include liquefaction-induced settlement, flow failure, and lateral spreading. These phenomena can occur where there are loose, granular deposits below the groundwater level. Seismic densification occurs where loose granular deposits above the groundwater level densify during strong seismic shaking resulting in settlement at the ground surface.

While regional mapping (ABAG, 2023) indicates the site to have a low to very low susceptibility to liquefaction, we encountered loose to medium dense sandy gravelly alluvial soils at various locations and depths along the alignment. We judge there is a low to moderate risk of liquefaction or seismic densification and associated surface effects (differential settlement, sand boils, etc.) in areas underlain by loose soils during significant seismic shaking. Based on subsurface conditions explored, the amount of settlement is expected to be small (on the order of 1-inch). Remaining project work areas are underlain either by medium dense gravelly deposits and weathered bedrock, none of which are judged to present any significant risk of damage from liquefaction or seismic densification.

Evaluation: Less than significant with special engineering measures.
Recommendations: Some post-seismic settlements of surrounding improvements may result in offsets between manholes or other structures and surrounding grades. New structures should also utilize flexible utility connections to reduce the risk of damage arising from post seismic differential settlements.

Settlement

Significant settlement can occur when new loads are applied to soft, compressible soils, such as Bay Mud. The rate and magnitude of potential settlements are dependent on the new loads that are applied, the thickness of compressible material, and the inherent compressibility properties of the soft soils. Soft, silty, and clayey soils were observed in borings located along Roble Avenue, Pinon Avenue and Orleans Drive. These soils may be prone to settlement under new loading. We do not anticipate that the planned improvement will induce any significant new loads; therefore, significant long-term settlement is not considered a hazard to the proposed project. However, some minor settlements may occur over time due to previous loading (i.e., fills, structures, etc.).

Evaluation: Less than significant with special engineering measures.
Recommendations: Some long-term consolidation settlements of surrounding improvements may result in offsets between manholes or other structures and surrounding grades. New structures should also utilize flexible utility connections to reduce the risk of damage arising from long-term consolidation settlements.

Conclusions and Recommendations

Based on our subsurface exploration and experience with similar projects in the area, we judge the proposed improvements are feasible from a geotechnical standpoint. The primary geotechnical considerations for project design and construction include providing appropriate temporary support for deep excavations in weak, caving material, and adequate design of below-grade structures. Geotechnical design criteria and recommendations for these and other project facets are presented in the following sections.

SITE GRADING, EXCAVATION AND BACKFILL

1. Site Preparation - We anticipate site grading will be limited to trenching including saw cutting and removing existing asphalt and/or concrete in work areas. Existing asphalt and base rock could be processed to meet the requirements for select fill (outlined below) for possible reuse as backfill for new utilities. Excavated areas (i.e., excavations for removal of old pipes) should be restored with properly moisture-conditioned and compacted fill as described in the following sections. Utilities that are abandoned in-place should be completely filled with controlled density fill (CDF) in other areas.
2. Anticipated Excavation Conditions - Based on anticipated alignment depths ranging from about 5- to 10-feet below the ground surface, excavations for new improvements will encounter a variety of geologic materials ranging from loose to medium dense silty and clayey sands and gravels, soft to stiff clayey soils, and weathered bedrock. Site excavations along San Pablo Avenue are expected to encounter relatively shallow Franciscan sandstone at depths between 3- and 6-feet below the ground surface, while excavations along Roble Avenue, Pinon Avenue and Orleans Drive are anticipated to encounter variable alluvial soils. Non-cohesive soils within the fill and alluvium are expected to exhibit running behavior when located above the groundwater table and flowing behavior when located below the groundwater table. Franciscan bedrock is expected to exhibit firm behavior, while the soft silts will exhibit squeezing behavior. Definitions of these anticipated ground behaviors are presented in the Tunnelman's Ground Classification for Soils, Figure 5.

Per regulations promulgated by the California Occupational Safety and Health Administration (Cal-OSHA), trench excavations having a depth of five feet or more which will be entered by workers must be sloped, braced, or shored to protect workers from potential collapse. Cal-OSHA dictates allowable slope configurations and minimum shoring requirements based on categorized soil types. The Contractor is responsible for site safety and should select an appropriate shoring system for the anticipated site conditions. The chosen system should be capable of providing immediate support to the sides of the excavation in order to minimize the amount of time the excavation is unsupported. Detailed discussions regarding expected excavation conditions, including soil type designations in accordance with Cal-OSHA classifications, are presented in the following sections.

San Pablo Avenue

Excavations along San Pablo will generally encounter loose to medium-dense, weakly cemented/lithified sands and clayey sands in the upper 4- to 5-feet with hard sandstone bedrock below. The bedrock becomes harder and more competent with depth. It is expected that most of these excavations occurring within the alluvium and fills may be accomplished with “traditional” equipment such as excavators and back-hoes. However, more resistant weathered bed rock may require specialized techniques or equipment to excavate (e.g., jackhammers or hydraulic breakers). We recommend inclusion of a line item and clear definition for “hard rock excavation” in the project bid documents. If hard rock is encountered during construction which prohibits excavation to the required depths, we should be consulted to observe conditions and confirm presence of hard rock. Reducing planned excavation depths will also reduce the potential for hard rock excavation and resulting costs. In general, medium-dense to dense sands and gravels will classify as “Type C” soils and the weathered bedrock will classify as “Type A”.

Roble Avenue, Pinon Avenue, and Orleans Drive

Excavations within these streets will extend through loose to medium-dense, silty, and clayey sand and gravel and soft to medium stiff, medium to high plasticity silts. It is expected that most of these excavations may be accomplished with “traditional” equipment as described above and are classified as OSHA “Type C” soils. Excavations in these areas will typically yield clayey and silty mixtures not likely suitable for re-use as fill.

3. **Fill Materials** – Bedding materials for utility pipes should consist of well-graded sand with 90 to 100 percent of particles passing the No. 4 sieve and no more than 5 percent finer than the No. 200 sieve. Provide the minimum bedding beneath the pipe in accordance with the manufacturer’s recommendation, typically 3 to 6 inches.

Fill materials used to backfill onsite excavations should consist of non-expansive materials spread uniformly and not exceed 8-inches thickness per lift. In general, fill materials shall be free of organic matter, have a Liquid Limit of less than 40, a Plasticity Index of less than 15, and have a minimum R-value of 20. The intermediate fill material should contain no more than 50 percent fine grained soils (percentage of particles passing a number 200 sieve) and contain no particles larger than 4-inches in diameter. Based on the above criteria, some onsite soils may be suitable for re-use as trench backfill. Alternatively, aggregate baserock or controlled-density fill (CDF) may also be used as trench backfill.

4. **Structure and Utility Trench Backfill and Stabilization** – Due to the expected depth and limited access for backfill compaction for new below grade structures such as manholes, any backfill between the manhole and surrounding soil should consist of ¾-inch crushed rock (drain rock) that is compacted in place with vibratory equipment (i.e., concrete stinger or “jumping jack” type equipment). Shoring should be incrementally raised as fill material is placed to avoid pulling shoring after fill compaction, which would loosen the fill, resulting in voids and a higher risk of surface damage due to backfill settlement.

All trench backfill should be uniformly conditioned to near the optimum moisture content. Properly moisture-conditioned and cured materials should be placed in loose horizontal lifts no more than 8-inches thick and uniformly compacted to at least 90% relative compaction to produce a firm, non-yielding surface. The uppermost 12-inches of trench backfill in structural areas and vehicular pavements should be compacted to at least 95% relative compaction and must be firm and un-yielding when proof-rolled with heavy construction equipment. Relative compaction, maximum dry density, and optimum moisture content of fill materials should be determined in accordance with ASTM Test Method D 1557, "Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using a 10-lb. Hammer and 18-in. Drop". In areas where trench bottoms are soft, loose, or otherwise unstable, we recommend the trench bottoms be over-excavated a minimum 12-inches below the planned pipe invert and which is backfilled with drain rock completely wrapped with a geotextile filter fabric, such as Mirafi FW300 or an approved equivalent.

Design of Below-Grade Structures

The weight of new below-grade structures such as manholes will likely be less than the weight of the excavated soil and relatively small volume of crushed rock backfill, so settlement of the structures would not be considered a significant concern. The vertical load of the structure will need to be resisted by a 300-psf skin friction on the sides and a 2,000-psf soil bearing capacity below the structure. The Structural Engineer should design below-grade structures using values provided in Table A and as schematically shown on Figure 5.

TABLE A
FOUNDATION AND BELOW-GRADE WALL DESIGN CRITERIA
City of Pinole – Pinon-1 Sewer Replacement
Pinole, California

Allowable dead load bearing pressure ^{1,2} :	
Soil:	1,500 psf
Bedrock:	2,500 psf
Base friction:	0.30
Restrained Active Soil Pressure ^{3,4,5} :	
Above the groundwater table:	35 H psf
Below the groundwater table:	15 H psf
Hydrostatic Pressure ⁶ :	63 x Hw pcf
Hydrostatic Uplift Pressure ^{3,7} :	63 x Hw pcf
HS20 Traffic Loading ³	
0 to 5 feet below the ground surface	200 psf
5 to 10 feet below the ground surface	100 psf
Earthquake Surcharge ^{3,5,8} :	15 H psf
Passive Soil Pressure ⁶ :	
Soil:	200 pcf
Bedrock:	350 pcf

- (1) Values shown assume below-grade structure bottomed in medium dense soils.
- (2) May increase design values by 1/3 for total design loads, including wind and seismic.
- (3) Uniform, rectangular lateral pressure distribution.
- (4) For compacted soil conditions.
- (5) H = Total height of wall (in feet).
- (6) Equivalent Fluid Pressure
- (7) Hw = Difference in water level (in feet).
- (8) Design for a factor of safety of 1.0 or greater for seismic conditions.

Potential buoyancy should be checked for manholes or other open below grade structures where shallow groundwater is anticipated. We recommend using a skin friction value of 500 psf, with a design groundwater level of at the ground surface and a minimum required factor of safety of 1.2. If factors of safety are less than 1.2, mitigation measures (i.e. – larger footing, etc.) can be incorporated into the design.

Asphalt Concrete Pavements

New pavements will be required for backfilled areas which extend into traffic areas. We have calculated preliminary pavement sections in accordance with Caltrans procedures for flexible pavement design. We have provided a range of Traffic Indices (TI) from 4 to 7 depending on the expected traffic loads for a twenty-year design life. For preliminary design, we have assumed an R-value of 20 and 50 for select fill and Class 2 aggregate subbase, respectively. During construction, we must test the subgrade soil to verify the R-value condition. The preliminary recommended pavement sections are presented in Table B.

TABLE B
ASPHALT PAVEMENT DESIGN CRITERIA
City of Pinole – Pinon-1 Sewer Replacement
Pinole, California

Select Fill Soil Backfill <u>R-Value = 20</u>			Aggregate Subbase Rock Backfill <u>R-Value = 50</u>		
<u>T.I.</u>	<u>Asphalt Concrete⁽¹⁾</u>	<u>Aggregate Base Rock⁽²⁾</u>	<u>T.I.</u>	<u>Asphalt Concrete⁽¹⁾</u>	<u>Aggregate Base Rock⁽²⁾</u>
4.0	3.0 inches	5.0 inches	4.0	2.5 inches	4.0 inches
5.0	3.5 inches	7.0 inches	5.0	3.0 inches	5.0 inches
6.0	4.0 inches	9.0 inches	6.0	3.5 inches	6.0 inches
7.0	5.0 inches	10.0 inches	7.0	4.0 inches	7.0 inches

- (1) The asphalt concrete should conform to the criteria for asphalt presented in Section 39 of the Caltrans Standard Specifications. The asphalt concrete shall be placed in layers not exceeding 2.5 inches in thickness and compacted to at least 95 percent relative compaction.
- (2) The aggregate base material should conform to Class 2 Aggregate Baserock per Section 26 of the current edition of Caltrans Standard Specifications and compacted to achieve at least 95 percent relative compaction and a non-yielding surface when proof-rolled with heavy construction equipment.

R-value testing should be performed as part of our future services to confirm the assumed value is appropriate across the project site if native soil is to be used as backfill. For repair of pavements outside of trench backfill zones, the upper 8-inches of subgrade under pavement sections must be scarified, moisture conditioned to near the optimum water content, and then compacted to a minimum 95 percent relative compaction.

Trenchless Considerations

Trenchless methods may be considered for portions of the sewer replacement project and will likely be required where the alignment crosses the existing railroad tracks. Loose noncohesive soils, potential cobbles and caving conditions were encountered in the upper 5- to 10-feet in in our borings. Groundwater was also encountered in several borings between 3.5 and 7.5 feet below ground surface. The design of the undercrossing and selection of the trenchless construction method should account for the potential to encounter these conditions during installation.

The trenchless installation should be performed by a Contractor experienced in projects with similar casing materials, diameters, and installation lengths. Trenchless construction can cause ground deformations which could result in damage to nearby improvements. Therefore, survey reference points should be installed on nearby existing structures (e.g. pavements, utilities,

foundations, etc.) to allow for monitoring of potential movement that may occur during construction. A preconstruction survey should be performed to serve as a baseline for comparison with the monitoring data collected during construction. Temporary shoring and dewatering for the launching and receiving pits should be designed in accordance with the recommendations outlined above.

Plan Review and Construction Observation

We should review the design plans as they are nearing completion to confirm that the intent of our geotechnical recommendations has been incorporated. During construction, we must observe and test the geotechnical work items to verify that our recommendations are appropriate for the site conditions and that the work is performed in accordance with our recommendations.

If there are any questions or if we can be of further assistance, please call.

Yours very truly,
MILLER PACIFIC ENGINEERING GROUP

REVIEWED BY:

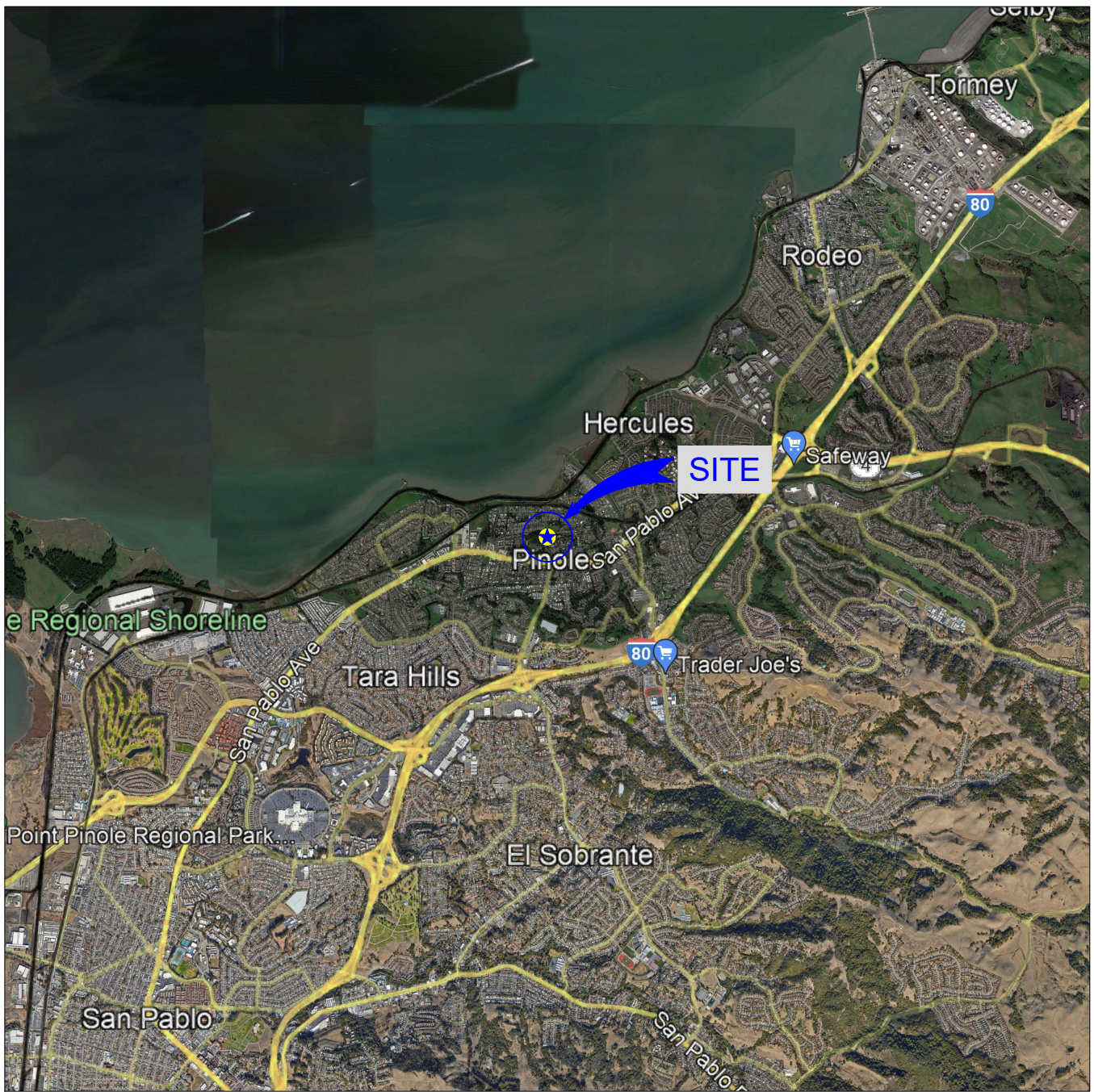


Nathan Klemin
Geotechnical Engineer No. 3168
(Expires 3/31/25)



Benjamin S. Pappas
Engineering Geologist No. 2786
(Expires 9/30/24)

Attachments: Figures 1 through 5;
Appendix A: Subsurface Exploration and Laboratory Testing




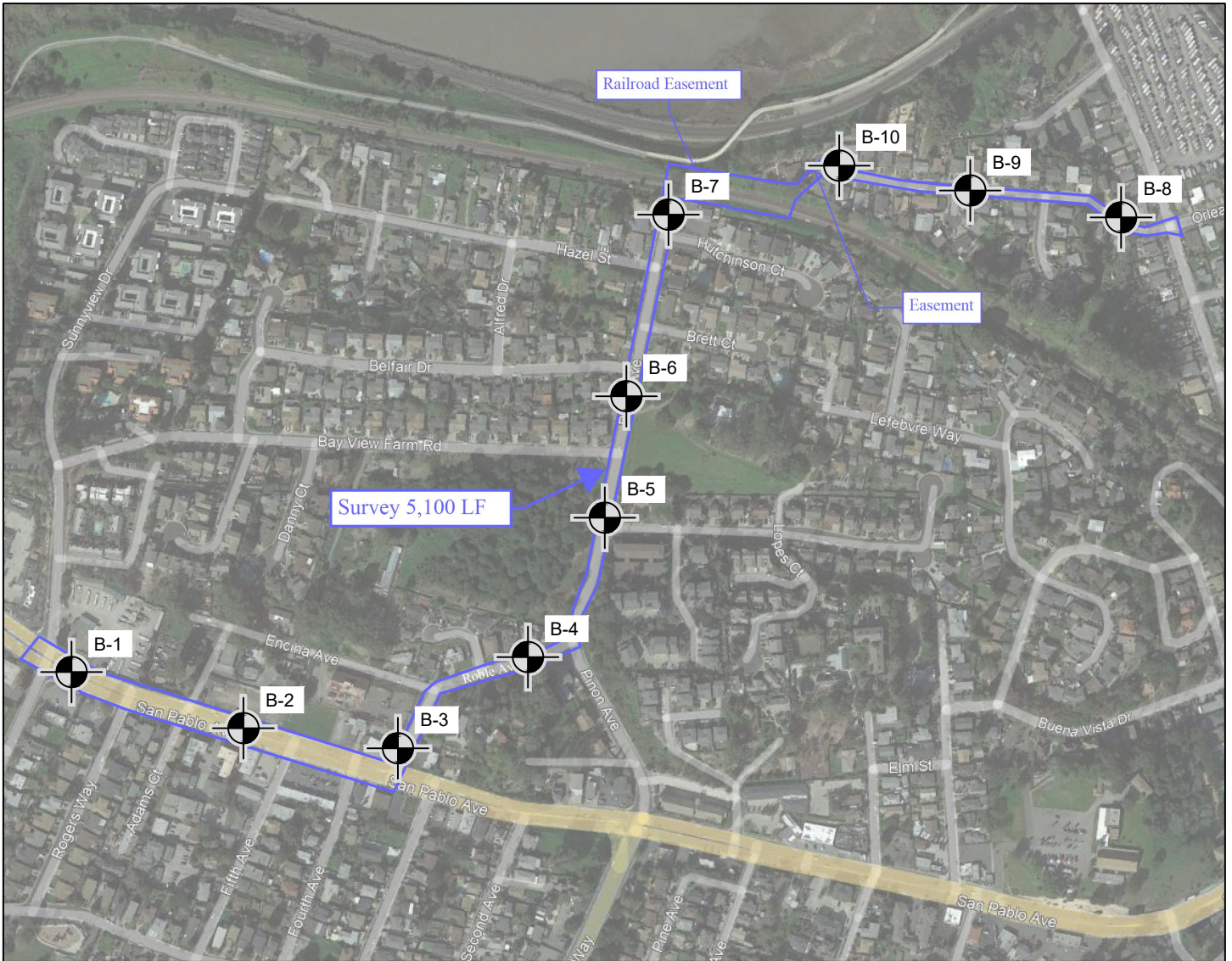
SITE COORDINATES
 LAT. 38.0059°
 LON. -122.2300°

SITE LOCATION
 N.T.S.



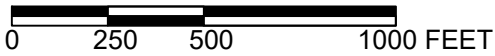
REFERENCE: Google Earth, 2022

	504 Redwood Blvd.	SITE LOCATION MAP City of Pinole Pinon-1 Sewer Line Replacement Pinole, California		Drawn _____ Checked <u>NGK</u>	<div style="font-size: 2em; font-weight: bold;">1</div> FIGURE
	Suite 220 Novato, CA 94947 T 415 / 382-3444 F 415 / 382-3450 www.millerpac.com				
<small>A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED FILENAME: 3492.001 Figures.dwg</small>					



SITE PLAN

SCALE



Approximate location of boring completed by MPEG, 2023

REFERENCE: Site Plan provided by West Valley Construction

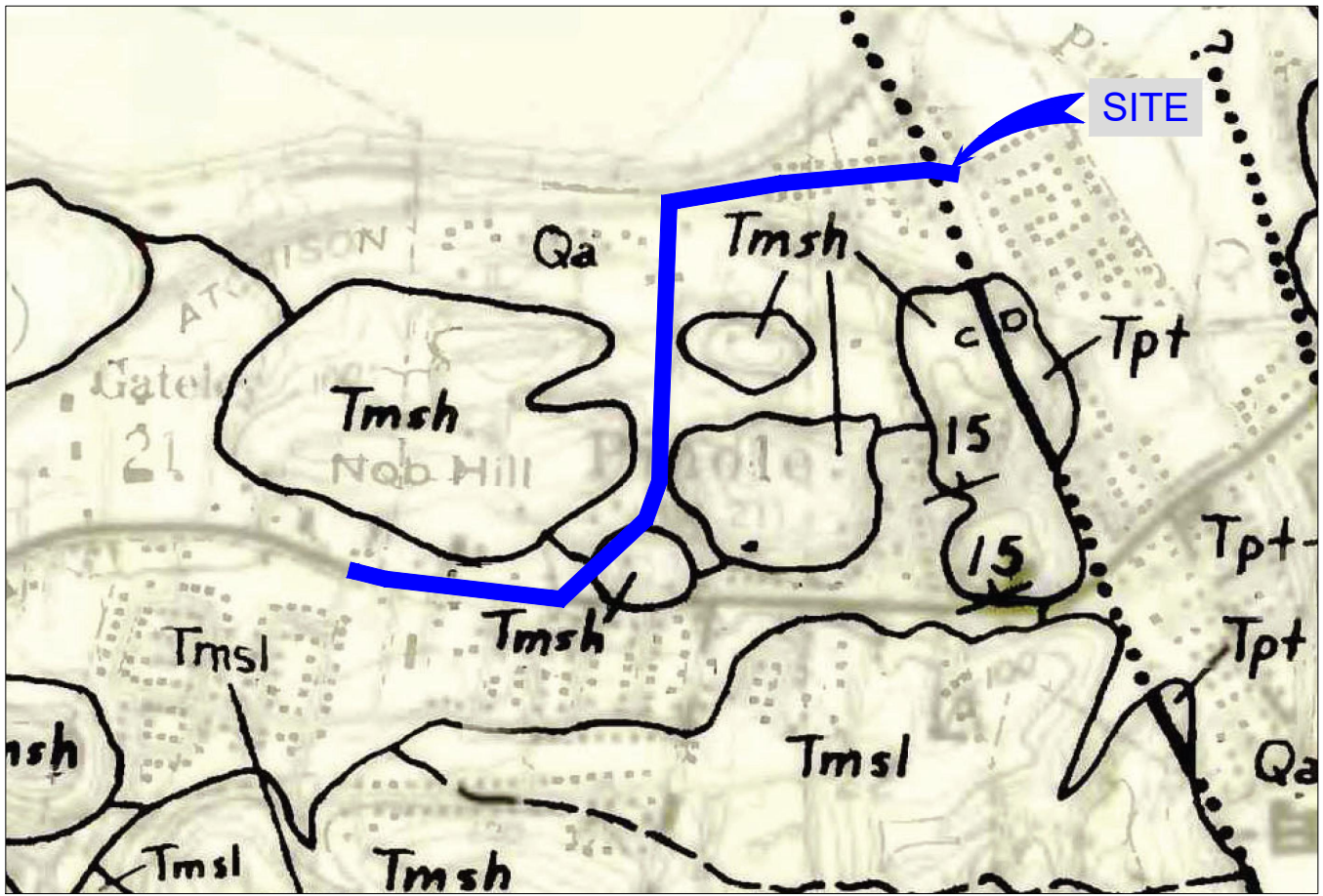
	<p>MILLER PACIFIC ENGINEERING GROUP</p>
A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED FILENAME: 3492.001 Figures.dwg	

504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

SITE PLAN City of Pinole Pinon-1 Sewer Line Replacement Pinole, California	
Project No. 3492.001	Date: 3/29/2023

Drawn _____ Checked _____	NGK
------------------------------	------------

2
FIGURE



REGIONAL GEOLOGIC MAP



LEGEND

- Qa Alluvium (Holocene): Unconsolidated deposits of clay, silt, sand, and gravel underlying valley bottoms, consisting of materials transported and deposited by streams.
- Qoa Older Alluvium (Pleistocene): Deposits of clay, silt, sand, and gravel underlying valley bottoms, consisting of materials transported and deposited by streams.
- Tpt Pinole Tuff Formation (Pliocene): Consisting of pumiceous tuff breccia.
- Tmsl Marine Sedimentary Rocks (Miocene): Consisting of light gray, massive, locally sandy siltstone and claystone.
- Tmsh Marine Sedimentary Rocks (Miocene): Consisting of gray-white, siltstone or mudstone, silty, siliceous or diatomaceous.
- Fault: Dashed where inferred, dotted where concealed, queried where doubtful.

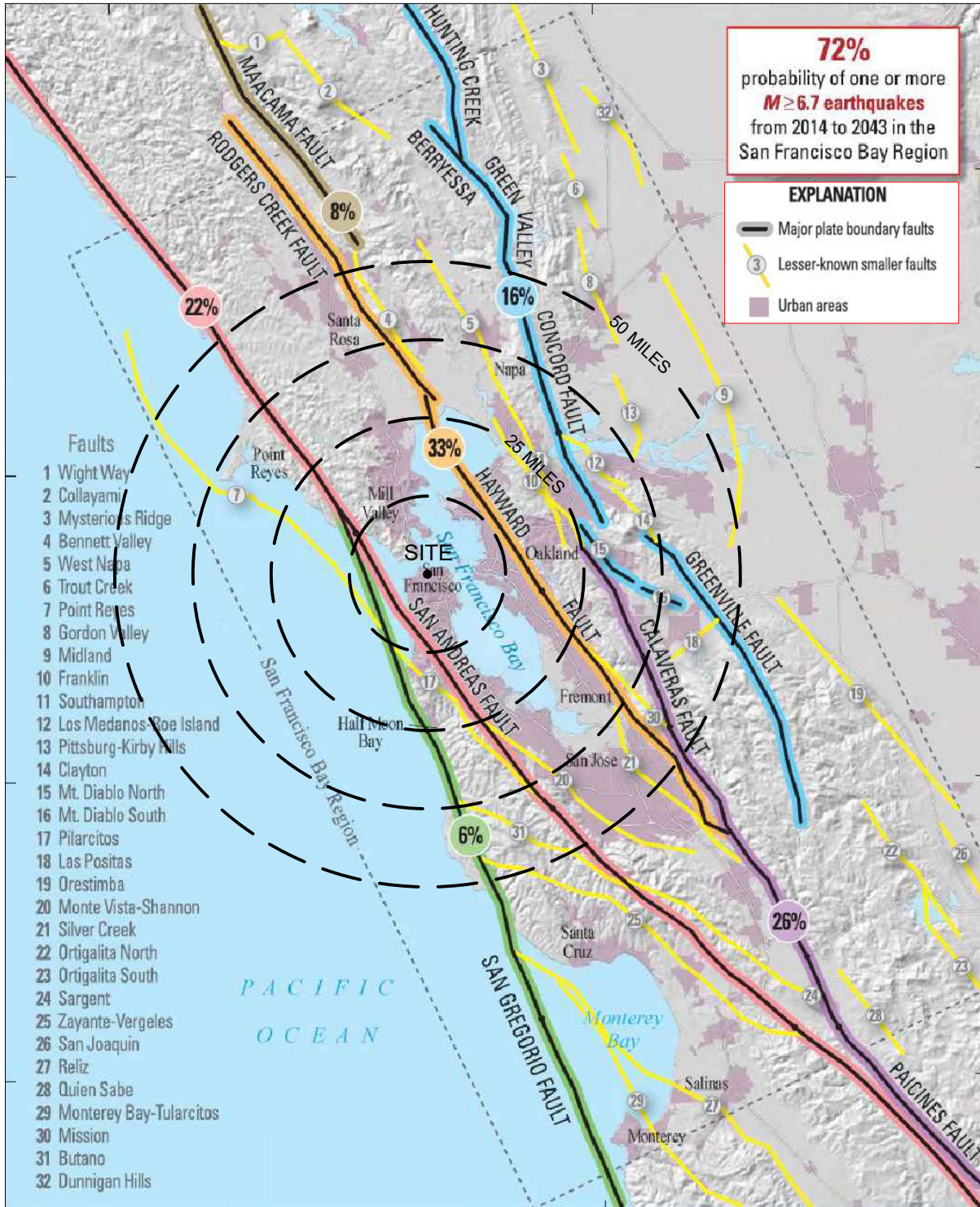
REFERENCE: Dibble, Thomas Jr., (1981), "Preliminary Geologic Map of the Mare Island Quadrangle, Solano and Contra Costa Counties, California," US Department of the Interior, US Geological Survey, Open-File Report 81-234, Scale 1:24,000.



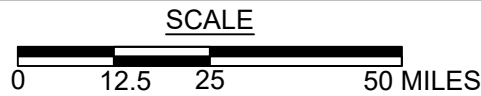
A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED
 FILENAME: 3492.001 Figures.dwg

504 Redwood Blvd.
 Suite 220
 Novato, CA 94947
 T 415 / 382-3444
 F 415 / 382-3450
 www.millerpac.com

REGIONAL GEOLOGIC MAP		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;"> Drawn _____ NGK Checked _____ </td> <td style="width: 50%; text-align: center; vertical-align: middle;"> <div style="font-size: 2em; font-weight: bold; margin: 0;">3</div> <div style="font-weight: bold; margin: 0;">FIGURE</div> </td> </tr> </table>	Drawn _____ NGK Checked _____	<div style="font-size: 2em; font-weight: bold; margin: 0;">3</div> <div style="font-weight: bold; margin: 0;">FIGURE</div>
Drawn _____ NGK Checked _____	<div style="font-size: 2em; font-weight: bold; margin: 0;">3</div> <div style="font-weight: bold; margin: 0;">FIGURE</div>			
City of Pinole Pinon-1 Sewer Line Replacement Pinole, California	Project No. 3492.001 Date: 3/29/2023			



SITE COORDINATES
LAT. 38.0059°
LON. -122.2300°



DATA SOURCE:

1) U.S. Geological Survey, U.S. Department of the Interior, "Earthquake Outlook for the San Francisco Bay Region 2014-2043", Map of Known Active Faults in the San Francisco Bay Region, Fact Sheet 2016-3020, Revised August 2016 (ver. 1.1).



**MILLER PACIFIC
ENGINEERING GROUP**

504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

ACTIVE FAULT MAP

City of Pinole
Pinon-1 Sewer Line Replacement
Pinole, California

Drawn NGK
Checked _____

4
FIGURE

Tunnelman's Ground Classification for Soils¹

Classification		Behavior	Typical Soil Types
Firm		Heading can be advanced without initial support, and final lining can be constructed before ground starts to move.	Loess above water table; hard clay, marl, cemented sand and gravel when not highly overstressed.
Raveling	Slow raveling -----	Chunks or flakes of material begin to drop out of the arch or walls sometime after the ground has been exposed, due to loosening or to over-stress and "brittle" fracture (ground separates or breaks along distinct surfaces, opposed to squeezing ground). In fast raveling ground, the process starts within a few minutes, otherwise the ground is slow raveling.	Residual soils or sand with small amounts of binder may be fast raveling below the water tale, slow raveling above. Stiff fissured clays may be slow or fast raveling depending upon degree of overstress.
	Fast raveling		
Squeezing		Ground squeezes or extrudes plastically into tunnel, without visible fracturing or loss of continuity, and without perceptible increase in water content. Ductile, plastic yield and flow due to overstress.	Ground with low frictional strength. Rate of squeeze depends on degree of overstress. Occurs at shallow to medium depth in clay of very soft to medium consistency. Stiff to hard clay under high cover may move in combination of raveling at excavation surface and squeezing at depth behind surface.
Running	Cohesive - running -----	Granular materials without cohesion are unstable at a slope greater than their angle of repose (+/- 30° – 35°). When exposed at steeper slopes they run like granulated sugar or dune sand until the slope flattens to the angle of repose.	Clean, dry granular materials. Apparent cohesion in moist sand, or weak cementation in any granular soil, may allow the material to stand for a brief period of raveling before it breaks down and runs. Such behavior is cohesive-running.
	Running		
Flowing		A mixture of soil and water flows into the tunnel like a viscous fluid. The material can enter the tunnel from the invert as well as from the face, crown, and walls, and can flow for great distances, completely filling the tunnel in some cases.	Below the water table in silt, sand, or gravel without enough clay content to give significant cohesion and plasticity. May also occur in highly sensitive clay when such material is disturbed.
Swelling		Ground absorbs water, increases in volume, and expands slowly into the tunnel.	Highly preconsolidated clay with plasticity index in excess of about 30, generally containing significant percentages of montmorillonite.

¹ Modified by Heuer (1974) from Terzaghi (1950)



A CALIFORNIA CORPORATION, © 2022, ALL RIGHTS RESERVED
FILENAME: 3492.001 Figures.dwg

504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

TUNNELMAN'S GROUND CLASSIFICATION

City of Pinole
Pinon-1 Sewer Line Replacement
Pinole, California

Project No. 3492.001

Date: 3/29/2023

Drawn _____
Checked NGK

5

FIGURE

APPENDIX A
SUBSURFACE EXPLORATION AND LABORATORY TESTING

A. Soil and Rock Classification Systems

We explored subsurface conditions at the site with 10 exploratory borings drilled on March 6th and 7th, 2023 at the approximate locations shown on Figure 2. Borings were excavated to maximum explored depths between 6.5- to 16.5-feet below the ground surface by use of a track-mounted drill rig equipped with 4-inch solid continuous flight augers.

Samples were collected from select intervals by use of a 3.0-inch diameter, 18-inch long, split-barrel "California" sampler equipped with 6-inch by 2.5-inch brass tube liners and a 2.0-inch diameter, 18-inch long, split-barrel Standard Penetration Test (SPT) sampler without liners. Samplers were driven by a 140-pound auto-trip hammer falling 30-inches. The number of blows required to drive each sampler was recorded on the boring logs.

The soils encountered were logged and identified by our field geologist in general accordance with ASTM Standard D 2487, "Field Identification and Description of Soils (Visual-Manual Procedure)." This standard is briefly explained on the Soil Classification Chart and Key to Log Symbols and Rock Classification Chart, Figures A-1 and A-2, respectively. The exploratory boring logs are presented on Figures A-3 through A-12.

B. Laboratory Testing

We conducted laboratory tests on selected intact samples to verify field identifications and to evaluate engineering properties. The following laboratory tests were conducted in accordance with the ASTM standard test method cited:

- Laboratory Determination of Water (Moisture Content) of Soil, Rock, and Soil-Aggregate Mixtures, ASTM D 2216;
- Density of Soil in Place by the Drive-Cylinder Method, ASTM D 2937;
- Unconfined Compressive Strength of Cohesive Soil, ASTM D 2166; and
- Amount of Material in Soils Finer than No. 200 (75- μ m) Sieve, ASTM D 1140.

The moisture content, dry density, unconfined compressive strength and percent particles finer than no. 200 sieve test results are shown on the exploratory boring logs, Figures A-3 through A-12.

The exploratory boring logs, description of soils encountered and the laboratory test data reflect conditions only at the location of the excavation at the time they were excavated or retrieved. Conditions may differ at other locations and may change with the passage of time due to a variety of causes including natural weathering, climate, and changes in surface and subsurface drainage.

MAJOR DIVISIONS		SYMBOL	DESCRIPTION
COARSE GRAINED SOILS over 50% sand and gravel	CLEAN GRAVEL	GW	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
	GRAVEL with fines	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	CLEAN SAND	SW	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
	SAND with fines	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS over 50% silt and clay	SILT AND CLAY liquid limit <50%	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	SILT AND CLAY liquid limit >50%	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity
HIGHLY ORGANIC SOILS	PT	Peat, muck, and other highly organic soils	
ROCK		Undifferentiated as to type or composition	

KEY TO BORING AND TEST PIT SYMBOLS

CLASSIFICATION TESTS

PI	PLASTICITY INDEX
LL	LIQUID LIMIT
SA	SIEVE ANALYSIS
HYD	HYDROMETER ANALYSIS
P200	PERCENT PASSING NO. 200 SIEVE
P4	PERCENT PASSING NO. 4 SIEVE

STRENGTH TESTS

UC	LABORATORY UNCONFINED COMPRESSION
TXCU	CONSOLIDATED UNDRAINED TRIAXIAL
TXUU	UNCONSOLIDATED UNDRAINED TRIAXIAL
	UC, CU, UU = 1/2 Deviator Stress
DS (2.0)	DRAINED DIRECT SHEAR (NORMAL PRESSURE, ksf)

SAMPLER TYPE

	MODIFIED CALIFORNIA		HAND SAMPLER
	STANDARD PENETRATION TEST		ROCK CORE
	THIN-WALLED / FIXED PISTON		DISTURBED OR BULK SAMPLE

SAMPLER DRIVING RESISTANCE

Modified California and Standard Penetration Test samplers are driven 18 inches with a 140-pound hammer falling 30 inches per blow. Blows for the initial 6-inch drive seat the sampler. Blows for the final 12-inch drive are recorded onto the logs. Sampler refusal is defined as 50 blows during a 6-inch drive. Examples of blow records are as follows:

25 sampler driven 12 inches with 25 blows after initial 6-inch drive

85/7" sampler driven 7 inches with 85 blows after initial 6-inch drive

50/3" sampler driven 3 inches with 50 blows during initial 6-inch drive or beginning of final 12-inch drive

NOTE: Test boring and test pit logs are an interpretation of conditions encountered at the excavation location during the time of exploration. Subsurface rock, soil or water conditions may vary in different locations within the project site and with the passage of time. Boundaries between differing soil or rock descriptions are approximate and may indicate a gradual transition.



A CALIFORNIA CORPORATION, © 2023, ALL RIGHTS RESERVED
FILENAME: 3492.001 BL.dwg

504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

SOIL CLASSIFICATION CHART

City of Pinole
Pinon-1 Sewer Line Replacement
Pinole, California

Project No. 3492.001

Date: 3/29/2023

Drawn _____
Checked BDH

A-1
FIGURE

FRACTURING AND BEDDING

Fracture Classification

Crushed
Intensely fractured
Closely fractured
Moderately fractured
Widely fractured
Very widely fractured

Spacing

less than 3/4 inch
3/4 to 2-1/2 inches
2-1/2 to 8 inches
8 to 24 inches
2 to 6 feet
greater than 6 feet

Bedding Classification

Laminated
Very thinly bedded
Thinly bedded
Medium bedded
Thickly bedded
Very thickly bedded

HARDNESS

Low
Moderate
Hard
Very hard

Carved or gouged with a knife
Easily scratched with a knife, friable
Difficult to scratch, knife scratch leaves dust trace
Rock scratches metal

STRENGTH

Friable
Weak
Moderate
Strong
Very strong

Crumbles by rubbing with fingers
Crumbles under light hammer blows
Indentations <1/8 inch with moderate blow with pick end of rock hammer
Withstands few heavy hammer blows, yields large fragments
Withstands many heavy hammer blows, yields dust, small fragments

WEATHERING

Complete	Minerals decomposed to soil, but fabric and structure preserved
High	Rock decomposition, thorough discoloration, all fractures are extensively coated with clay, oxides or carbonates
Moderate	Fracture surfaces coated with weathering minerals, moderate or localized discoloration
Slight	A few stained fractures, slight discoloration, no mineral decomposition, no affect on cementation
Fresh	Rock unaffected by weathering, no change with depth, rings under hammer impact

NOTE: Test boring and test pit logs are an interpretation of conditions encountered at the location and time of exploration. Subsurface rock, soil and water conditions may differ in other locations and with the passage of time.



**MILLER PACIFIC
ENGINEERING GROUP**

504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

ROCK CLASSIFICATION CHART

City of Pinole
Pinon-1 Sewer Line Replacement
Pinole, California



Project No. 3492.001

Date: 3/29/2023

Drawn _____
Checked BDH

A-2
FIGURE

DEPTH		BORING 1		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
meters	feet	SAMPLE	SYMBOL (4)						
		EQUIPMENT: Track Mounted Hydraulic Drill Rig with 4.0-inch Solid Flight Auger							
		DATE: 3/6/2023							
		ELEVATION: 110 - feet*							
		*REFERENCE: Google Earth, 2023							
0	0		5" Asphalt Concrete over 6" Aggregate Base						
			Sandy GRAVEL (GP) Gray-brown, moist, medium dense, gravels primarily 1/4" to 1/2" with few gravels up to 2", 25 to 35% fine to coarse sand, 5 to 15% fines. [Fill]						
1			SAND (SP) Brown, wet, loose, fine to medium grained, 5 to 15% fines. [Fill]	27	101	20.3	UC 800		
			Gravel (GW) Brown, moist, loose, gravels up to 3", 10 to 20% fine to medium grained sand, 5 to 15% fines. [Colluvium]	8	77	31.0			
2			Sandstone Medium tan-brown, low to moderate hardness, friable to weak, moderate to high weathering. [Bedrock] Grades moderate hardness, weak, moderate weathering.	81	83	32.8	UC 850		
				86/11.5"		32.7			
3	10		Boring terminated at 9.5' Groundwater encountered at 6.5'						
4									
5									
6	20								

 Water level encountered during drilling
 Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
 (2) METRIC EQUIVALENT DRY UNIT WEIGHT $\text{kN/m}^3 = 0.1571 \times \text{DRY UNIT WEIGHT (pcf)}$
 (3) METRIC EQUIVALENT STRENGTH (kPa) = $0.0479 \times \text{STRENGTH (psf)}$
 (4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY



MILLER PACIFIC
ENGINEERING GROUP

A CALIFORNIA CORPORATION, © 2023, ALL RIGHTS RESERVED
 FILENAME: 3492.001 BL.dwg

504 Redwood Blvd.
 Suite 220
 Novato, CA 94947
 T 415 / 382-3444
 F 415 / 382-3450
 www.millerpac.com

BORING LOG

City of Pinole
 Pinon-1 Sewer Line Replacement
 Pinole, California



Project No. 3492.001 Date: 3/29/2023

Drawn _____
 BDH
 Checked _____

A-3

FIGURE

DEPTH		BORING 2		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA	
meters	feet	EQUIPMENT: Track Mounted Hydraulic Drill Rig with 4.0-inch Solid Flight Auger	DATE: 3/6/2023							
SAMPLE	SYMBOL (4)	ELEVATION: 115 - feet*								
		*REFERENCE: Google Earth, 2023								
0	0	5" Asphalt Concrete over 6" Aggregate Base								
		Sandy GRAVEL (GP) Gray-brown, moist, medium dense, gravels 1/4" to 1/2", 20 to 30% fine to coarse sand, 5 to 15% fines. [Fill]			35	89	29.6	UC 625		
		Sandstone Gray-brown, moderate hardness, weak, high to moderate weathering. [Bedrock]								
1		Auger refusal at 6.5' No groundwater encountered			70		27.4			
5										
2										
3	10									
4										
15										
5										
6	20									

 Water level encountered during drilling
 Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
 (2) METRIC EQUIVALENT DRY UNIT WEIGHT $\text{kN/m}^3 = 0.1571 \times \text{DRY UNIT WEIGHT (pcf)}$
 (3) METRIC EQUIVALENT STRENGTH (kPa) = $0.0479 \times \text{STRENGTH (psf)}$
 (4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY



MILLER PACIFIC
ENGINEERING GROUP

A CALIFORNIA CORPORATION, © 2023, ALL RIGHTS RESERVED
 FILENAME: 3492.001 BL.dwg

504 Redwood Blvd.
 Suite 220
 Novato, CA 94947
 T 415 / 382-3444
 F 415 / 382-3450
 www.millerpac.com

BORING LOG

City of Pinole
 Pinon-1 Sewer Line Replacement
 Pinole, California

Project No. 3492.001 Date: 3/29/2023

Drawn _____
 Checked BDH

A-4

FIGURE

DEPTH		SAMPLE		SYMBOL (4)		BORING 3		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
0 - 0						EQUIPMENT: Track Mounted Hydraulic Drill Rig with 4.0-inch Solid Flight Auger							
						DATE: 3/6/2023							
						ELEVATION: 92 - feet*							
						*REFERENCE: Google Earth, 2023							
0	0					4" Asphalt Concrete over 6" Aggregate Base							
						Silty SAND with Gravel (SM) Medium brown, moist, loose to medium dense, fine to coarse grained, 20 to 30% gravels up to 1/2", 20 to 30% low to medium plasticity silt [Fill]		14	82	32.8	UC 1025		
						Sandy SILT (ML) Dark-medium brown, moist, medium stiff to stiff, low to medium plasticity, 10 to 20% fine to medium grained sand [Fill]		13	81	37.2	UC 225		
1						Sandy GRAVEL (GC) Medium tan-brown, moist, loose, gravels 1/4" to 2", 20 to 30% fine to coarse sand, 15 to 25% low plasticity clay. [Alluvium]		8	89	30.4	UC 475		
5						SILT (MH) Very dark brown, moist to saturated, soft to medium stiff, high plasticity, slight sulfuric odor. [Alluvium]							
2						Grades very stiff.		34	89	31.1	UC 250		
3	10					Boring terminated at 11.5' Groundwater encountered at 3.5'							
4													
15													
5													
6	20												

▽ Water level encountered during drilling
 ▽ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
 (2) METRIC EQUIVALENT DRY UNIT WEIGHT $\text{kN/m}^3 = 0.1571 \times \text{DRY UNIT WEIGHT (pcf)}$
 (3) METRIC EQUIVALENT STRENGTH (kPa) = $0.0479 \times \text{STRENGTH (psf)}$
 (4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY



A CALIFORNIA CORPORATION, © 2023, ALL RIGHTS RESERVED
 FILENAME: 3492.001 BL.dwg

504 Redwood Blvd.
 Suite 220
 Novato, CA 94947
 T 415 / 382-3444
 F 415 / 382-3450
 www.millerpac.com

BORING LOG

City of Pinole
 Pinon-1 Sewer Line Replacement
 Pinole, California

Project No. 3492.001

Date: 3/29/2023

Drawn _____
 BDH
 Checked _____

A-5
 FIGURE

DEPTH		BORING 4		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
meters	feet	SAMPLE	SYMBOL (4)						
0	0								
			3" Asphalt Concrete over 5" Aggregate Base						
			Silty GRAVEL with Sand (GM) Gray-brown, moist, medium dense, gravels up to 3", 15 to 25% fine to coarse sand, 25 to 35% high plasticity silt. [Alluvium]	19	65	50.6			
1			SILT (MH) Very dark brown, moist, soft to medium stiff, high plasticity. [Alluvium]	7	64	57.9	UC 325		
	5		Grades stiff.	24	83	32.4	UC 1300		
2									
	10			16	88	29.3	UC 900		
3			Boring terminated at 10' Groundwater encountered at 4'						
4									
	15								
5									
	20								
6									

- ▽ Water level encountered during drilling
- ▽ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT $\text{kN/m}^3 = 0.1571 \times \text{DRY UNIT WEIGHT (pcf)}$
(3) METRIC EQUIVALENT STRENGTH (kPa) = $0.0479 \times \text{STRENGTH (psf)}$
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY



A CALIFORNIA CORPORATION, © 2023, ALL RIGHTS RESERVED
FILENAME: 3492.001 BL.dwg

504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

BORING LOG

City of Pinole
Pinon-1 Sewer Line Replacement
Pinole, California



Project No. 3492.001

Date: 3/29/2023

Drawn _____
BDH
Checked _____

A-6
FIGURE

DEPTH				BORING 5		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
meters	feet	SAMPLE	SYMBOL (4)	EQUIPMENT: Track Mounted Hydraulic Drill Rig with 4.0-inch Solid Flight Auger							
				DATE: 3/7/2023							
				ELEVATION: 71 - feet*							
				*REFERENCE: Google Earth, 2023							
0	0			3" Asphalt Concrete over 5" Aggregate Base							
				Silty GRAVEL with Sand (GM) Gray-green, moist, gravels up to 1.5", 20 to 30% fine to coarse sand, 25 to 35% low plasticity silt. [Alluvium]		19	72	35.5	UC 550		
				Sandy SILT with Gravel (ML) Dark brown, moist, stiff, low plasticity, 20 to 30% fine to coarse sand, 10 to 20% gravels. [Alluvium]		15	83	22.3	UC 900		
				Grades trace sand, occasional gravels up to 1/2".							
				SILT (MH) Very dark brown, moist to saturated, medium stiff, high plasticity, slight sulfuric odor. [Alluvium]		13		38.9			
				Sandy SILT (ML) Dark brown, moist to saturated, stiff, medium plasticity, 35 to 45% fine sand. [Alluvium]		18	93	29.5			
				Boring terminated at 11.5' Groundwater encountered at 7'							

 Water level encountered during drilling
 Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
 (2) METRIC EQUIVALENT DRY UNIT WEIGHT $\text{kN/m}^3 = 0.1571 \times \text{DRY UNIT WEIGHT (pcf)}$
 (3) METRIC EQUIVALENT STRENGTH $(\text{kPa}) = 0.0479 \times \text{STRENGTH (psf)}$
 (4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY



A CALIFORNIA CORPORATION, © 2023, ALL RIGHTS RESERVED
 FILENAME: 3492.001 BL.dwg

504 Redwood Blvd.
 Suite 220
 Novato, CA 94947
 T 415 / 382-3444
 F 415 / 382-3450
 www.millerpac.com

BORING LOG

City of Pinole
 Pinon-1 Sewer Line Replacement
 Pinole, California

Project No. 3492.001

Date: 3/29/2023

Drawn _____
 BDH
 Checked _____

A-7
 FIGURE

DEPTH				BORING 8							
meters	feet	SAMPLE	SYMBOL (4)	EQUIPMENT:	Track Mounted Hydraulic Drill Rig with 4.0-inch Solid Flight Auger	BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
0	0			4" Asphalt Concrete over 3" Aggregate Base							
				SILT (MH) Dark brown, moist, stiff, high plasticity, abundant mycelia at 2.5'. [Alluvium]		22	94	27.0	UC 1125		
1				Grades gray-green, no mycelium.		22	92	28.0	UC 1900		
5											
2						18	96	27.3			
3	10			Sandy SILT (ML) Tan-brown, moist, very stiff, low plasticity, 10 to 20% very fine sand. [Alluvium]		26	84	36.1	UC 725		
4				Boring terminated at 11.5' No groundwater encountered							
15											
5											
6	20										

- ▽ Water level encountered during drilling
- ▼ Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT $kN/m^3 = 0.1571 \times$ DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = $0.0479 \times$ STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY



A CALIFORNIA CORPORATION, © 2023, ALL RIGHTS RESERVED
FILENAME: 3492.001 BL.dwg

504 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com

BORING LOG

City of Pinole
Pinon-1 Sewer Replacement
Pinole, California



Project No. 3492.001

Date: 3/29/2023

Drawn _____
Checked BDH

A-10
FIGURE

DEPTH				BORING 9		BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
meters	feet	SAMPLE	SYMBOL (4)	EQUIPMENT:	DATE:						
0	0			Track Mounted Hydraulic Drill Rig with 4.0-inch Solid Flight Auger	3/7/2023						
				ELEVATION: 60 - feet*							
				*REFERENCE: Google Earth, 2023							
				1" Asphalt Concrete over 2" Aggregate Base							
				Clayey SAND (SC) Tan-brown, moist, medium dense, fine grained, 15 to 25% medium plasticity clay. [Alluvium]		17	95	14.8	UC 500		
1											
	5					26	97	13.4	UC 200		
2				Grades 5 to 15% gravels up to 1/2".							
						25	97	22.1	UC 750		
3				Sandy CLAY with Gravel (CL) Brown, moist, very stiff, medium plasticity, 15 to 25% fine to coarse sand, 10 to 20% gravels up to 1/2". [Alluvium]		29	97	21.0	UC 225		
	10					13		26.2			
4				Boring terminated at 11.5' No groundwater encountered							
	15										
5											
6	20										

 Water level encountered during drilling
 Water level measured after drilling

NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
 (2) METRIC EQUIVALENT DRY UNIT WEIGHT $\text{kN/m}^3 = 0.1571 \times \text{DRY UNIT WEIGHT (pcf)}$
 (3) METRIC EQUIVALENT STRENGTH (kPa) = $0.0479 \times \text{STRENGTH (psf)}$
 (4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY



MILLER PACIFIC
ENGINEERING GROUP

A CALIFORNIA CORPORATION, © 2023, ALL RIGHTS RESERVED
 FILENAME: 3492.001 BL.dwg

504 Redwood Blvd.
 Suite 220
 Novato, CA 94947
 T 415 / 382-3444
 F 415 / 382-3450
 www.millerpac.com

BORING LOG







City of Pinole
 Pinon-1 Sewer Line Replacement
 Pinole, California

Project No. 3492.001 Date: 3/29/2023

Drawn _____
 Checked BDH

A-11

FIGURE

DEPTH		BORING 10				BLOWS / FOOT (1)	DRY UNIT WEIGHT pcf (2)	MOISTURE CONTENT (%)	SHEAR STRENGTH psf (3)	OTHER TEST DATA	OTHER TEST DATA
meters	feet	SAMPLE	SYMBOL (4)	EQUIPMENT: Track Mounted Hydraulic Drill Rig with 4.0-inch Solid Flight Auger							
EQUIPMENT: Track Mounted Hydraulic Drill Rig with 4.0-inch Solid Flight Auger DATE: 3/7/2023 ELEVATION: 59 - feet* *REFERENCE: Google Earth, 2023											
0	0		4" Asphalt Concrete over 6" Aggregate Base								
			Clayey GRAVEL with Sand (GC) Medium brown, moist, loose, gravels up to 1", 20 to 30% fine to coarse sand, 25 to 35% medium plasticity clay. [Alluvium]		8	96	17.4	UC 175			
			Clayey SAND (SC) Dark brown, moist, loose, fine grained, 25 to 35% medium plasticity clay. [Alluvium]		11	98	24.2	UC 1225			
			Sandy CLAY (CL) Dark brown, moist, medium stiff, medium plasticity, 5 to 15% fine sand. [Alluvium]		22	96	22.6	UC 1275	P200 74%		
			Grades gray-green, stiff, 20 to 30% very fine sand.		31	93	26.1	UC 1725			
			Grades very stiff		16		25.1		P200 72%		
Boring terminated at 11.5'											
No groundwater encountered											
Water level encountered during drilling											
Water level measured after drilling											

- NOTES: (1) UNCORRECTED FIELD BLOW COUNTS
 (2) METRIC EQUIVALENT DRY UNIT WEIGHT $kN/m^3 = 0.1571 \times$ DRY UNIT WEIGHT (pcf)
 (3) METRIC EQUIVALENT STRENGTH (kPa) = $0.0479 \times$ STRENGTH (psf)
 (4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY



MILLER PACIFIC
ENGINEERING GROUP

504 Redwood Blvd.
 Suite 220
 Novato, CA 94947
 T 415 / 382-3444
 F 415 / 382-3450
 www.millerpac.com

BORING LOG

City of Pinole
 Pinon-1 Sewer Line Replacement
 Pinole, California
 Project No. 3492.001 Date: 3/29/2023

Drawn BDH
 Checked _____

A-12
 FIGURE

APPENDIX A
SUBSURFACE EXPLORATION AND LABORATORY TESTING

A. Soil and Rock Classification Systems

We explored subsurface conditions at the site with 10 exploratory borings drilled on March 6th and 7th, 2023 at the approximate locations shown on Figure 2. Borings were excavated to maximum explored depths between 6.5- to 16.5-feet below the ground surface by use of a track-mounted drill rig equipped with 4-inch solid continuous flight augers.

Samples were collected from select intervals by use of a 3.0-inch diameter, 18-inch long, split-barrel "California" sampler equipped with 6-inch by 2.5-inch brass tube liners and a 2.0-inch diameter, 18-inch long, split-barrel Standard Penetration Test (SPT) sampler without liners. Samplers were driven by a 140-pound auto-trip hammer falling 30-inches. The number of blows required to drive each sampler was recorded on the boring logs.

The soils encountered were logged and identified by our field geologist in general accordance with ASTM Standard D 2487, "Field Identification and Description of Soils (Visual-Manual Procedure)." This standard is briefly explained on the Soil Classification Chart and Key to Log Symbols and Rock Classification Chart, Figures A-1 and A-2, respectively. The exploratory boring logs are presented on Figures A-3 through A-12.

B. Laboratory Testing

We conducted laboratory tests on selected intact samples to verify field identifications and to evaluate engineering properties. The following laboratory tests were conducted in accordance with the ASTM standard test method cited:

- Laboratory Determination of Water (Moisture Content) of Soil, Rock, and Soil-Aggregate Mixtures, ASTM D 2216;
- Density of Soil in Place by the Drive-Cylinder Method, ASTM D 2937;
- Unconfined Compressive Strength of Cohesive Soil, ASTM D 2166; and
- Amount of Material in Soils Finer than No. 200 (75- μ m) Sieve, ASTM D 1140.

The moisture content, dry density, unconfined compressive strength and percent particles finer than no. 200 sieve test results are shown on the exploratory boring logs, Figures A-3 through A-12.

The exploratory boring logs, description of soils encountered and the laboratory test data reflect conditions only at the location of the excavation at the time they were excavated or retrieved. Conditions may differ at other locations and may change with the passage of time due to a variety of causes including natural weathering, climate, and changes in surface and subsurface drainage.

THIS PAGE INTENTIONALLY LEFT BLANK



VII. PROJECT PLANS

THIS PAGE INTENTIONALLY LEFT BLANK