

# The "GREENBOOK" 2009 Edition



## City Supplement





## INTRODUCTION

The 2009 City of San Diego Supplement also known as “City Supplement” has been prepared to be used in conjunction with the Standard Specifications for Public Works Construction (Greenbook), 2009 Edition. The majority of 2006 Regional Supplement requirements adopted by the City in the past has also been consolidated here for the convenience of designers and constructors.

The specifications contained in City Supplement take precedence over the specification language contained in Greenbook, 2009 Edition.

## PRINT ORDERS

A limited number of hard copy editions will be available from the City (Development Services Department) at the time of adoption on a first come first served basis. Future requests from staff for additional prints should be directed to the City’s Print Shop. Electronic copy of this document may also be obtained from the City’s web site or by sending a request to the e-mail address below.

## COMMENTS

The City of San Diego is committed to the quality of this publication and desires to correct any errors, omissions, or ambiguity. If you have any suggestions, comments, corrections, or additions you would like to submit for consideration to be included in the next publication, you may submit them to:

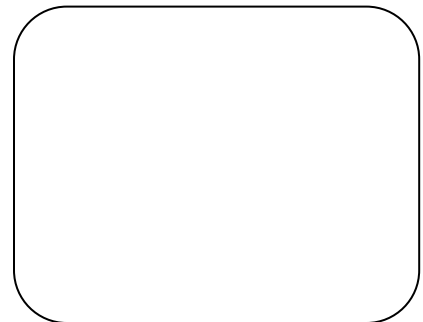
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## ACKNOWLEDGEMENT

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## PART 1

### GENERAL PROVISIONS

#### SECTION 1 – TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE AND SYMBOLS

##### 1-1 GENERAL. DELETE in its entirety and SUBSTITUTE with the following:

Whenever the terms "directed," "required," "permitted," "ordered," "designated," "prescribed," or terms of like import are used, it shall be understood that the direction, requirements, permission, order, designation, or prescription of the Engineer is intended. Similarly, the terms "approved," "acceptable," "satisfactory," "or equal," or terms of like import shall mean approved or acceptable to or satisfactory to the Engineer, unless otherwise expressly stated.

The word "provide" shall be understood to mean furnish and install, unless otherwise expressly stated.

##### 1-2 TERMS AND DEFINITIONS.

**Contract Price** – DELETE in its entirety and SUBSTITUTE with the following:

The total amount for which the Contract is awarded plus approved Change Order(s).

**Engineer** – ADD the following:

Authorized agents of the Engineer may be referred to as Resident Engineer, Supervising District Engineer, or Deputy Director, who are charged with conducting detailed administration and inspection of the Contract.

ADD the following definitions:

**Acceptance** - Formal action of the City in determining that the Contractor's Work has been completed in accordance with the Contract Documents, filing a NOC with the County Recorder, and notifying the Contractor in writing of the acceptability of the Work.

**Act(s) of God** - A cataclysmic phenomenon of nature, such as an earthquake, flood, or cyclone (tornado). Events which shall not be construed as Acts of God include wind, wind shear, micro-bursts, rain, high water, storm water runoff, or other natural phenomena which might reasonably have been anticipated from historical records of the general locality of the Work.

**Agent** - Any individual, firm, association, partnership, corporation, trust, joint venture or other legal entity, e.g., the Project Manager and Consultants, employed by the City for services on this Project.

**Allowance** – Payment under "AL" Allowance Bid items will be based on the actual expenditures for pre-authorized items of Work in accordance with Contract Documents.



**Apparent Low Bidder** - The Bidder whose Bid, having been publicly opened and read aloud, meets the material requirements of the Bid Documents, and whose Bid price is the lowest received.

**Applicable Laws** - Laws, statutes, ordinances, rules, orders, and regulations of governmental authorities and courts having jurisdiction.

**Application for Payment** - The document prepared by the Contractor which is submitted to the City showing the Contractor's entitlement to progress payments.

**As-builts** - The Red-lines drawings cleaned-up and approved appropriately from the original conception of the design to reflect the actual product built.

**Award of Contract - Date of** - Date on which the Mayor or designee executes the Contract Documents and conditions precedent to award have been satisfied.

**Business Day** - See Working Day.

**CEQA** - The California Environmental Quality Act.

**City** - The City of San Diego. See Agency.

**City Forces** - Employees of City who perform construction field work on public works projects as outlined in the Contract Documents.

**Change Proposal** - Proposal for a Change Order submitted by the Contractor to the City, either at the request of the City, or at the Contractor's own initiative.

**Claim** - A written demand by the Contractor that seeks an adjustment in the Contract Price or the Contract Time, or other relief associated with a dispute arising under or relating to the Contract, including a breach of any provision thereof. A written demand by the Contractor is not a Claim unless: 1) the written demand conforms to the requirements of Section 3-6, "Dispute Resolution Process"; and 2) the City has previously denied a request by the Contractor for a Change Order seeking the demanded relief. Further, a voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a Claim. A Claim made in accordance with this contract shall not qualify as a claim against City for the purposes of the California Government Code.

**Consultant** - The individual, partnership, corporation, joint-venture, or other legal entity named as such in the Contract Documents or succeeding entity (e.g., architects and engineers) employed by the City for Project design or other specialized services and who function under the direction of the Engineer.

**Construction Documents** – Construction Documents shall be the Contractor's plans and details, including plans showing installation of major systems, equipment, fixed furnishings and graphics, the technical specifications and all other technical drawings, schedules, diagrams and specifications, accepted Shop Drawings, Working Drawings, and submittals that are necessary to set forth in detail the requirements for the Project.

**Construction Manager** - The person designated, in writing, by the City to act as its representative at the Site and to perform construction inspection services and administrative functions relating to this contract e.g., to make initial decisions regarding questions which may arise as to the quality or acceptability of materials furnished and Work performed, as to the manner of performance, and rate of progress of the Work under the Contract. Initial contact by the Contractor with the City shall be through the Construction Manager. The Construction Manager oversees and enforces the Contract Documents and makes initial decisions with respect to the Contractor's fulfillment of the Contract obligations and the Contractor's entitlement to compensation.

The Construction Manager may be an employee of the City or an independent Consultant contracted to represent the City.

If a Construction Manager is not provided by the City, references to Construction Manager shall be the same as Resident Engineer.

**Contract Time** - The number of successive days or Working Days stated in the Contract Documents for the completion of the Work.

**Defective Work** - Work that is unsatisfactory, faulty, deficient, does not conform to the Contract Documents, does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; unauthorized material substitutions; or Work that has been damaged by anyone other than City prior to Final Acceptance.

**Demobilization** - The complete dismantling and removal by the Contractor of all of the Contractor's temporary facilities, equipment, materials, and personnel at the Site.

**Drawings** – See Plans.

**Execution of Contract - Date of** – See Award of Contract.

**Field Order** - A Field Order is a written order by the Engineer to compensate the Contractor for items of work, as further defined in 9-3.6, "Field Orders." A field order shall not increase Contract Price, Contract Time, or both.

**Final Acceptance** – See Acceptance.

**Final Completion** - Satisfactory completion of Work required by this contract as evidenced by the recorded NOC with the San Diego County.

**Final Payment** - The last payment for this contract made by City to the Contractor when all applicable requirements have been met.

**Hazardous Materials or Waste** - Items identified in Section 104 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time or, 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, whichever is more restrictive.



**Holiday** - The City-observed holidays are listed below (if any holiday listed falls on a Saturday, then the Saturday and the preceding Friday are both legal holidays. If the holiday falls on a Sunday, both Sunday and the following Monday will be legal holidays):

<u>Holiday</u>	<u>Observed On</u>
New Year's Day	January 1
Martin Luther King Day	Third Monday in January
Presidents Day	Third Monday in February
Caesar Chavez Day	March 31
Memorial Day	Last Monday in May
Independence Day	July 4
Labor Day	First Monday in September
Veteran's Day	November 11
Thanksgiving Day	Fourth Thursday in November
Christmas Day	December 25

**Milestone(s)** - Principal event(s) specified in the Contract Documents relating to an intermediate completion date of a portion of the Work, or a period of time within which the portion of the Work shall be performed prior to Completion of the Work. Liquidated damages are frequently associated with Milestones.

**Markout** - The temporary marking/painting of the ground, pavement, or sidewalk by the facility or utility owner or its representative. Markouts identify the approximate location of the existing buried utilities in the vicinity of planned construction for the convenience of the Contractor.

**Mayor or designee** - The City of San Diego Mayor or a designated representative.

**Owner** – See City.

**Notice of Completion (NOC)** - If, in the City's judgment, the Work has been completed, the City will file with the County Recorder a NOC which stipulates the date that the Work was accepted. The conditions of warranty in accordance with 6-8, "COMPLETION, ACCEPTANCE, AND WARRANTY" shall commence on the date of NOC unless stated otherwise in the Contract Documents.

**Party or Parties** - The City, the Contractor, or both, their respective permitted successors or assigns, and any other future signatories to this contract.

**Prime Contractor** – See Contractor.

**Product Data** - Illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for any portion of the Work.

**Project** - The Project is the object of this contract to be constructed by the Contractor as described and shown in the Contract Documents.

**Project Manager** - The individual charged with overall responsibility for the Project.

**Project Site** - All areas where Work is to be performed pursuant to this contract. Project Site may also be referred to as Site and Work Site.

**Public Art** - Includes physical art that may be an integral part of a public site or building, as defined in the San Diego Municipal Code.

**Red-lines** - Plans with annotations of changes made during construction, in red, to reflect the actual product built during construction.

**Request for Information (RFI)** - The written request for information made by the Contractor to City to clarify any parts of the Contract Documents.

**Retention** - The amount withheld by the City from the money due to the Contractor in accordance with 9-3.2, "Partial and Final Payment".

**Punchlist** - List of items or corrections required to comply with Contract Documents.

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

**Schedule** – Contractor prepared and City accepted Critical Path Method (CPM) schedule in accordance with 6-1, "CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK."

**Separate Contractors** - Those individuals or entities who have entered into arrangements with the City for the provision of labor, materials, or other services in connection with the Project who are not under contract with the Contractor.

**Services** - Professional services, including design, engineering, and construction management of the Project that are required in accordance with the Contract Documents.

**Shop Drawings** – Drawings submitted by the Contractor showing details of manufactured or assembled products proposed to be incorporated into Work.

**Subconsultant** – See Subcontractor.

**Subcontract** - Agreement between the Contractor and another person or entity engaged to perform a portion of the Work.

**Submittals** - The information, materials, or Sample(s) specified for submission to the City in accordance with this contract.

**Supplier** - Manufacturer, fabricator, distributor, or vendor.

**Walk-through** - The procedure used by the City to evaluate status of the Project and generate a Punchlist.

**Working Drawings** – Drawings submitted by the Contractor showing details of work not shown on the Plans.

**Working Day** – Any day within the period between the date of the start of the Contract Time in accordance with 6-1, “CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK” and the date of Final Acceptance other than the days specified in 6-7.2, “Working Days”.

**Writing** - See California Evidence Code, Section 250.

### SECTION 2 – SCOPE AND CONTROL OF WORK

#### **ADD: 2-1.1 STANDARD CONTRACT PROVISIONS.**

**2-1.1.1 Document Ownership.** Once the Contractor has received any compensation for the Work performed, all documents, e.g., original plans, studies, sketches, drawings, computer printouts and files, and specifications prepared in connection with or related to the Work shall be the property of City. The City’s ownership of these documents includes use of, reproduction or reuse of, and all incidental rights, whether or not the item of Work for which they were prepared has been performed.

The City’s ownership entitlement arises upon payment or any partial payment for Work performed and includes ownership of any and all Work product completed under this contract. This Section shall apply whether the Contractor’s services are terminated: (a) by the completion of the Project; or (b) in accordance with other provisions of this contract. Notwithstanding any other provision of this section or the Contract, the Contractor shall have the right to make copies of all such plans, studies, sketches, drawings, computer printouts and files, and specifications.

The Contractor shall not be responsible for damage caused by subsequent changes to or uses of the plans or specifications, where the subsequent changes or uses are not authorized or approved by the Contractor, provided that the service rendered by the Contractor was not a proximate cause of the damage.

**2-1.1.2 Specification Tone.** Where used in the Contract Documents, statement or command type phrases (i.e., active voice and imperative mood) refer to and are directed to the Contractor.

**2-1.1.3 Special Notices.** When specified in these specifications or as directed by the Engineer, any notice required to be given in accordance with this subsection shall be in writing, dated, and signed by the duly authorized representative of such party giving the notice. The special notices shall be served by any of the following methods:

- a) Personal delivery to an authorized representative; proof of delivery of notice may be made by declaration under penalty of perjury of any person over the age of eighteen years. The proof of delivery shall show that delivery was done in conformity with this provision; service shall be effective on the date of delivery. Notices given to the Contractor by personal delivery may be made to the Contractor’s authorized representative at the Site.

- b) Certified mail addressed to the recipient at the address established for the conduct of the Work under this contract postage prepaid; return receipt requested; service shall be effective on the date of mailing.

Simultaneously, the City may send the same notice by regular mail. If a notice that is sent by certified mail is returned unsigned, then delivery shall be effective pursuant to regular mail, provided the notice that was sent by regular mail is not returned.

Notice given to the Surety will be addressed to the Surety at the address of the Surety last communicated by to the City.

**2-1.1.4 Joint Venture Contractors.** If the Contractor is a joint venture, all grants, covenants, provisions and claims, rights, powers, privileges and liabilities of the Contract shall be construed and held to be several as well as joint. Any notice, order, direct request or any communication given by the City to the Contractor, shall be given to all entities being the Contractor if given to any one or more of such entities. Any notice, request or other communication given by any one of such entities to the City under this contract shall be deemed to have been given by and shall bind all entities being the Contractor. The Joint Venture shall designate an on-site representative and an alternate in writing. The on-site representative and the alternate shall have the full authority to bind all Joint Venture partners.

The Joint Venture shall provide a copy of the Joint Venture agreement and the Joint Venture license to the City at the time of Contract award.

**2-1.1.5 Successor's Obligations.** All grants, covenants, provisions and claims, rights, powers, privileges and abilities contained in the Contract Documents shall be read and held as made by and with, and granted to and imposed upon, the Contractor and the City and their respective heirs, executors, administrators, successors, and assigns.

**2-1.1.6 Waiver of Legal Rights.** The failure of the City to insist, in any one or more instances, upon the performance of any provision of the Contract, or to exercise any right therein, shall not be construed as a waiver or relinquishment of such provisions or rights. Any waiver of any breach of this contract shall not be held to be a waiver of any other or subsequent breach.

Any waiver issued by the City of any provision of the Contract shall only be effective if issued in writing by the City and shall be specific, shall apply only to the particular matter concerned and not to other similar or dissimilar matters.

**2-1.1.7 Requests for Information (RFI).** In the event the work to be done, or matters relative thereto, are not sufficiently detailed or explained in the Contract Documents, the Contractor shall apply to the Engineer for further explanations as may be necessary and shall conform thereto so far as may be consistent with the terms of the Contract. In the event of doubt or question arising respecting the true meaning of the Specifications or Plans, reference shall be made to the Engineer for the Engineer's decision pursuant to 2-10, "AUTHORITY OF THE BOARD AND THE ENGINEER."

**2-3.2 Self Performance.** ADD the following:

The requirement that the Contractor perform, with its own organization, Contract work amount to at least 50% of the Contract Price applies only to the base Contract amount awarded, and shall not apply to Additive or Deductive Alternate Work described in the Bid documents.

**ADD: 2-3.4 Subcontract Requirements.** The Contractor shall require each Subconsultant and Subcontractor, to the extent of the Work to be performed by such Subconsultant and Subcontractor, to assume towards the Contractor all the obligations and responsibilities which the Contractor by the Contract Documents assumes towards the City and shall incorporate the terms of this contract and the Contract Documents to the extent applicable to the Work to be performed by the Subconsultants and Subcontractors.

The Contractor shall obtain or require that each Subcontractor obtain insurance policies in accordance with 7-3, "LIABILITY INSURANCE" which shall be kept in full force and effect during Work on this project and for the duration of this contract.

In any dispute between the Contractor and the Subcontractor, the City shall not be made a party to any judicial or administrative proceeding to resolve the dispute. The Contractor agrees to defend and indemnify the City in accordance with 7-16, "INDEMNIFICATION AND HOLD HARMLESS AGREEMENT" in any dispute between the Contractor and the Subcontractor should the City be made a party to any judicial or administrative proceeding to resolve the dispute in violation of this provision.

**2-4 CONTRACT BONDS.** First paragraph, DELETE second and third sentences and SUBSTITUTE the following:

Bonds shall be executed by a responsible surety as follows:

If the Work is being funded with state or local money, consistent with California Code of Civil Procedure §995.670, the Surety shall be an "admitted surety" authorized by the State of California Department of Insurance to transact surety insurance in the State.

If the Work is being funded with federal money, the Surety shall be listed in the U.S. Treasury Department Circular 570 and in conformance with the Underwriting Limitations as expressed therein.

DELETE the third and fourth paragraphs and SUBSTITUTE the following:

The Contractor shall provide the following bonds:

- a) Contracts less than \$10,000:
  - i. A "Payment Bond" (Materials and Labor Bond) is optional. If no bond is submitted, no payment will be made until 35 days after NOC has been recorded and any lien requirements have been fulfilled. If a bond is submitted, progress payments will be made in accordance with these Specifications.

- ii. A “Faithful Performance Bond” is not required.
- b) Contracts over \$10,000 and less than \$25,000:
  - i. A “Payment Bond” (Materials and Labor Bond) is optional. If no bond is submitted, progress payments may be made with a minimum of 20% retention. If a bond is submitted, progress payments will be made in accordance with these Specifications.
  - ii. A “Faithful Performance Bond” is not required.
- c) Contracts over \$25,000 and less than \$100,000:
  - i. A “Payment Bond” (Materials and Labor Bond) for not less than 100% of the Contract Price, to satisfy claims of material Suppliers and of mechanics and laborers employed on the Work. The bond shall be maintained by the Contractor in full force and effect until the Work is accepted by the City and until all claims for materials and labor are paid, and shall otherwise comply with the Government Code.
  - ii. A “Faithful Performance Bond” is not required.
- d) Contracts over \$100,000 or where submitted on optional basis:
  - i. A “Payment Bond” (Materials and Labor Bond) for 100% of the Contract Price, to satisfy claims of material Suppliers and of mechanics and laborers employed on the Work. The bond shall be maintained by the Contractor in full force and effect until the Work is accepted by the City and until all claims for materials and labor are paid, and shall otherwise comply with the Government Code.
  - ii. A “Faithful Performance Bond” for 100% of the Contract Price to guarantee faithful performance of Work, within the time prescribed, in a manner satisfactory to the City, and that materials and workmanship will be free from original or developed defects.
- e) Contracts over \$100,000 which include CDBG - HUD Program Funds:
  - i. A “Payment Bond” (Material and Labor Bond) for 100% of the Contract Price, to satisfy claims of material Suppliers and of mechanics and laborers employed on the Work. The bond shall be maintained by the Contractor in full force and effect until the Work is accepted by the City and until all claims for materials and labor are paid, and shall otherwise comply with the Government Code and Public Contract Code.
  - ii. A “Faithful Performance Bond” for 100% of the Contract Price to guarantee faithful performance of Work, within the time prescribed, in a manner satisfactory to the City, and that materials and workmanship will be free from original or developed defects.



The bond shall remain in effect until the end of warranty periods set forth in the Contract.

ADD the following:

If the Surety on any bond furnished by the Contractor is declared bankrupt, becomes insolvent, or its right to do business is terminated in any state where any part of the Project is located, the Contractor shall immediately notify the Engineer and immediately substitute another bond and surety acceptable to the City.

The Contractor shall require the Surety to mail its standard "Bond Status" form to the City at the following address:

Deputy Director  
Field Engineering Division  
9485 Aero Drive  
San Diego, CA 92123

### **2-5 PLANS AND SPECIFICATIONS.**

#### **2-5.1 General.** ADD the following:

If during the performance of the Work, the Contractor finds a conflict, error, omission, or discrepancy in the Contract Documents or in the City's field work, which is necessary for a clear understanding of the Work, or if any errors appear in either the various instruments or in the work done by other contractors affecting the Work included in the Specifications, the Contractor shall report it to the Engineer in writing at once and before proceeding with the Work affected thereby. If the Contractor fails to give such notice, the Contractor shall make good any damage or defect in the Work caused thereby.

If the Engineer finds an error or omission has been made, the Engineer will determine the corrective actions and advise the Contractor accordingly. If the corrective work associated with an error or omission increases or decreases the amount of Work called for in the Contract, the City will issue an appropriate Change Order or Field Order (as applicable).

After discovery of a claimed error or omission by the Contractor if the Contractor continues with the Work without written direction from the Engineer, the related work performed by the Contractor shall be at the Contractor's risk.

The execution of Work specially detailed or explained, without a previous written Claim for an Extra Work charge, shall constitute an acceptance by the Contractor.

It is the intent of the Specifications and Plans to describe a complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work that may reasonably be inferred from the Specifications or Plans as being required to produce the intended result shall be supplied whether or not it is specifically called for, at no additional cost to the City.

When words in the Specifications or on the Plans, which have a well-known technical or trade meaning, are used to describe Work, material, or equipment such words shall be interpreted per such meaning.

Reference to specified software, guides, standard specifications, manuals or codes of any technical society, organization or association, or to the code of any governmental authority, whether such reference be specific or by implication, shall mean the latest edition or version in effect at the time of opening of Bids (or, on the effective date of the Contract if there were no Bids), except as may be otherwise specifically stated. No provision of any referenced standard specifications, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of the Engineer or the Contractor or any of their agents or employees from those set forth in the Contract Documents. Clarifications and interpretations of the Contract Documents will be issued by the Engineer in accordance with 2-14, "REQUEST FOR INFORMATION."

**ADD: 2-5.1.1 Division of the Specifications and the Plans.** Specifications and Plans are divided into groups e.g., engineering disciplines for the convenience of the City. These divisions are not for the purpose of apportioning Work or responsibility for Work among Subcontractors and Suppliers.

**2-5.2 Precedence of Contract Documents.** DELETE in its entirety and SUBSTITUTE the following:

If there is a conflict between Contract Documents, the document highest in precedence shall control. The precedence shall be as follows with item (1) being the highest:

- 1) Permits; from other agencies as may be required by law
- 2) Change Orders and Supplemental Agreements; whichever occurs last
- 3) Contract Agreement
- 4) Addenda
- 5) Bid/Proposal
- 6) Supplementary Special Provisions (SSP)
- 7) Special Provisions
- 8) Plans
- 9) Standard Drawings
- 10) Standard Specifications
- 11) Reference Specifications

The figured dimensions shown on the drawings and in the specifications may not, in every case, agree with scale dimensions. Figured dimensions shall take precedence over scaled dimensions, and large-scaled drawings shall take precedence over small-scale drawings. Detailed drawings shall take precedence over general drawings.

For Design-Build contracts:

- a) Request for Qualifications (RFQ) and Request for Proposals (RFP) shall be included in the Contract Documents as item 5 above i.e., "Bid/Proposal."

- b) Construction Documents and Proposal supersede the RFP or the Bridging Documents if the Contractor has specifically informed the City of deviation at the time of the submittal and the City has given written approval to the specific deviation.

### **2-5.3 Submittals**

#### **2-5.3.1 General.** ADD the following:

Materials such as concrete, asphalt concrete, slurry, backfill and bedding, gravel, crushed rock, and other materials that are not produced or delivered until the day they are used do not require a submittal if they are determined by the Engineer to be standard materials provided in conformance with Part 2, "Construction Materials", Part 4, "Rock Products" and Part 5, "System Rehabilitation" unless otherwise specified.

For materials listed on the City's Approved Materials List (AML), in lieu of the submittal, the Contractor shall certify in writing, that the proposed equipment and material to be incorporated in the Work comply with the Contract requirements and AML.

Any substitutions requested by the Contractor shall require a formal submittal review process and shall clearly indicate deviations from the equipment and materials specified in the Contract Documents. For the substitution review process or to have materials listed on the AML, refer to the AML standard review process. There is no guaranteed time frame for completion of product substitution review as much of the information on criteria such as long term testing, service, and durability may not be readily available.

Within 5 working days of receipt of the City's comments, The Contractor shall resolve with the City any outstanding issues as a result of the City's comments. Unless agreed with the City in advance, The Contractor shall submit any required revised or final Submittals within 10 working days of the resolution of the submittal issues. It is the Contractor's responsibility to ensure that the comments of the City are addressed by the Contractor.

For Design-Build contracts, one copy of all designer reviewed submittals shall be provided to the City.

**ADD: 2-5.3.5 Trade Names or Equals.** In accordance with California Public Contract Code §3400(a), unless specified elsewhere in the specifications, the Contractor shall submit its list of proposed substitutions for "an equal" ("or equal") item within 35 days after award of the contract.

If an offered substitution by the Contractor for the trade names specified in the Contract necessitates changes to, or coordination with, other items of the Work, the information submitted shall include details showing such changes. The Contractor shall perform these changes as part of the substitution of material or equipment and at no additional cost to the City.

The lack of action on the Engineer's side by taking no exceptions to the proposed substitution shall not relieve the Contractor from responsibility for the efficiency, sufficiency, quality, and performance of the substitute material or equipment, in the same manner and degree as the material and equipment specified by name.

**ADD: 2-5.4 Red-lines Drawings.** The Contractor shall keep accurate records on a set of full size Plans of additions and deletions to the Work, and of changes in location, elevation, and character of the Work not otherwise shown or noted on Contract documents.

Red-lines drawings shall be coordinated with field measurements, Shop Drawings, Working Drawings, Samples, Product Data, and available records. The Contractor shall immediately give written notice of any conflicts between these documents to the City.

On building construction Contracts, the Contractor shall record the location by dimension and the depth by elevation of underground line, valves, plugged tees, capped ends, etc. The Contractor shall record, by dimension or scale plans, wiring, conduits, and pull boxes as installed. All information necessary to maintain, service, or both any concealed Work shall be noted on these Red-line Drawings. This data shall be legibly recorded to the satisfaction of the Engineer. Records shall be kept current with entries checked by the Engineer before the Work is buried or covered. These plans shall be delivered to the Engineer upon completion of the job.

The Contractor's failure to update and deliver Red-lines information monthly to the Engineer for review and approval may result in withholding of monthly progress payments.

The payment for Red-lines drawings shall be included in the various Bid items.

**ADD: 2-5.5 As-built Drawings.** For Design-Build contracts or if required in the Special Provisions, As-built Drawings shall be the responsibility of the Contractor.

As-built drawings shall be prepared from the Red-lines information and shall provide factual information regarding all aspects of the Work, both concealed and visible, to enable future modification of design to proceed without lengthy and expensive site measurement, investigation, and examination.

Prior to Final Completion, the Contractor shall prepare and submit one complete set of full sized (24" x 36") original Mylar final As-built Drawings (CADD plots) prepared in accordance with the City's CADD standards. Each CADD Mylar drawing sheet shall be wet stamped and signed by qualified responsible engineers registered in the State of California, and shall be stamped and wet signed by the architect/engineer of record, as required by law. Other applicable portions of the drawing title blocks shall also be signed by Contractor. Drawing Mylar shall be 3 mils minimum thickness.

The payment for As-built drawings shall be included in the various Bid items.

**ADD: 2-5.6 Measurements and Dimensions.** Scaled dimensions are approximate. Before ordering materials or commencing Work, measure site for proper size and fit. The Contractor shall verify dimensions and quantities by taking measurements in the field and shall be responsible for their correctness.

**2-6 WORK TO BE DONE.** ADD the following:

The City assumes no responsibility for any conclusions or interpretations made by the Contractor based on any information made available by the City. Nor does the City assume

responsibility for any understanding reached or representation made by any of the City's officers or agents before Award of this contract concerning conditions which could affect the Work, unless that understanding or representation is expressly stated in the Contract Documents.

Where approval or acceptance by the City is required, it is understood to be general approval only and does not relieve the Contractor of responsibility for complying with all applicable laws, codes, and best practices.

**2-7 SUBSURFACE DATA.** ADD the following:

The Plans for the Work show conditions as are believed by the Engineer to exist, but it is not to be inferred that all of the conditions as shown thereon actually exist, nor shall the City or any of its officers be liable for any loss sustained by the Contractor as a result of any variance between conditions as shown on the Plans and the actual conditions revealed during the progress of the Work or otherwise.

If reports of explorations and tests of subsurface conditions at the Site are included in the Contract Documents e.g., Supplementary Special Provisions (SSP), the Bidders are encouraged to inspect the Site, acquire, and review these reports and to take other necessary steps to thoroughly familiarize themselves with the Site conditions. If a review of the documents and Site inspection indicate a conflict, the Bidder shall immediately notify the City. For access and cost information to obtain those reports contact the City Project Manager, during regular business hours.

The City does not represent that the listed documents, or the logs, and test results, show the conditions that will be encountered in performing the Work. The City represents only that the logs, and test results show the conditions encountered at the particular locations and at the particular times they were obtained. The Bidders and other users of the subsurface data are cautioned that interpretations and conclusions contained in the documents were formulated for design purposes only and were based on work performed in such a way as to expressly provide information required for design.

**2-8 RIGHT-OF-WAY.** After first sentence, ADD the following:

The Contractor shall be responsible for coordinating with property owners as to timing, when access is provided through rights of entry, and shall protect private improvements in accordance with 7-9, "PROTECTION AND RESTORATION OF THE EXISTING IMPROVEMENTS."

**2-9.1 Permanent Survey Markers.** DELETE the first paragraph and SUBSTITUTE the following:

The Contractor shall be responsible for any monumentation, benchmarks, or both which will be disturbed or destroyed by construction. Such points shall be referenced prior to removal and replaced with appropriate monumentation by a licensed Land Surveyor or a Registered Civil Engineer authorized to practice land surveying.

A Corner Record or Record of Survey, as appropriate, shall be filed by the licensed Land Surveyor or Registered Civil Engineer as required by the Land Surveyor's Act. Replacement

standards shall be as established by the monument owner or in lack thereof in accordance with City adopted standard Drawings.

Prior to disturbing any monument or benchmark the Contractor shall notify the Engineer 5 Working Days in advance to permit inspection of the existing conditions.

**2-9.2 Survey Service.** ADD the following:

The property, right-of-way line, or both shall be located and marked with flags spaced 100' apart or as necessary to clearly mark the line before grading starts whenever the Work to be done is within 50' of the line or when specified on the Plans.

**2-10 AUTHORITY OF BOARD AND ENGINEER.** ADD the following:

Any plan or method of Work suggested to the Contractor by the City, but not specified or required by this contract, which is adopted or followed by the Contractor in whole or in part, shall be done at the sole risk and responsibility of the Contractor. The City assumes no responsibility and shall not be held liable for any defects in the Work which may result from or be caused by use of such plan or method or Work.

**2-11 INSPECTION.** ADD the following:

If required by the Engineer, the Contractor shall provide information related to the inspection of the Work. The Contractor shall provide access in accordance with Cal-OSHA Standards where necessary.

The Contractor shall request inspections in accordance with the prevailing Codes and by the City's Development Services Department. The Contractor shall coordinate these inspections at all times through the Engineer. The Contractor shall remove and replace any items of Work performed without the benefit of the required permit. For required subsequent inspection, the Contractor shall remove and replace Work at the discretion of Engineer at no additional cost to the City. Inspection of the Work shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract.

The Contractor shall give at least 5 days notice for off-site inspection. Notices shall not be deemed effective until the City has responded and agreed to the Contractor's date and time.

The City may either perform inspection services with its own forces or contract with third parties. The Contractor shall call for, coordinate, and schedule all inspections.

The City will make any inspections and tests as the City deems necessary to ensure the Work is accomplished in accordance with the requirements of the Contract Documents, other than inspections for Work performed in accordance with a permit. The Contractor shall be responsible for inspection of all Work performed in accordance with a permit. Unless otherwise specified, the Contractor shall pay the cost of inspections and tests. In the event inspections or tests reveal non-compliance with the requirements of the Construction Documents, the Contractor shall bear the cost of any and all corrective measures deemed necessary by the City, as well as the cost of the City's subsequent re-inspection and re-testing.



The City has the right, for a reasonable time, to stop or suspend Work which will cover, and thereby prevent or impede the City's or another agency's ability to inspect, test, or approve a portion of the Work. The Contractor shall have no right to additional costs or time that it may incur as a result of the Work stoppage or suspension.

The Work shall not be covered prior to inspection, testing, or approval required by the Contract Documents, the City's prior written request, or by other agencies. If any item of Work is covered prior to obtaining the required approvals, the Contractor shall, when requested by the City, uncover the Work for inspection, testing, approval, or all. Upon successful completion of the inspection, testing, or approval, the Contractor shall cover the Work where required again. The Contractor shall bear all direct and indirect costs and damages of such uncovering and re-covering and shall not be entitled to an increase in the Contract Price or the Contract Time, unless the Contractor has given the City and any other affected agencies written notice of the Contractor's intention to cover the Work and the City has not acted with in response to such notice.

Tests, inspections, and approvals of items of the Work required by the Contract Documents, Applicable Laws or normal construction practices shall be made at an appropriate time, and in accordance with the Contract Documents. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the City, or with the appropriate public authority, and the costs of such tests, inspections, and approvals shall be included in the Contract Price.

The Contractor shall give the City notice of when and where tests and inspections are to be made so that the City may observe such procedures. Costs of tests, inspections or approvals imposed upon the Contractor by Applicable Laws which do not become requirements until after execution of the Contract shall be an increase to the Contract Price in accordance with Section 3, "CHANGES IN WORK."

Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and delivered to the City.

**ADD: 2-12 PARTNERING.** The Contractor may request the formation of a Partnering relationship by submitting a request in writing to the Engineer after approval of the Contract. If the Contractor's request for Partnering is approved by the Engineer, scheduling of a Partnering workshop, selecting the Partnering facilitator and workshop, selecting the Partnering facilitator and workshop site, and other administrative details shall be as agreed to by both Parties.

The establishment of a Partnering relationship will not change or modify the terms and conditions of the Contract and will not relieve either party of the legal requirements of the contract.

The goals of partnering shall include:

- a) The Construction Manager, the City's representatives, and the Contractor's representatives including Subcontractors actively working together as partners;

- b) Avoidance of destructive confrontation and litigation among the parties;
- c) Mutual understanding on how the Work is to be conducted;
- d) Establishment of mutual key results to facilitate Project success; and,
- e) Establishment of an atmosphere of team work, trust, and open communication.

**2-12.1 Payment.** The payments involved in providing a facilitator and a workshop site will be borne equally by the City and the Contractor. The Contractor shall pay all compensation for the wages and expenses of the facilitator and of the expenses for obtaining the workshop site. The City's share of such costs will be reimbursed to the Contractor in a Change Order written by the Engineer unless a Bid item has been established for Partnering. Markups will not be added. Other costs associated with the Partnering relationship shall be borne separately by the party incurring the costs.

**ADD: 2-13 SITE ACTIVITIES BY THE CITY OR SEPARATE CONTRACTORS.**

**2-13.1 City's Right to Award Separate Contracts.** The City reserves the right to perform work or operations outside the scope of Work of this contract related to the Project with the City Forces, Separate Contractors, or both. If Work to be performed by another party was not noted in this contract, the City will give written notice to the Contractor 10 Working Days prior to the start of any work. If the Contractor determines that the work being performed by the City or others may interfere with, or cause damages to Work being performed by the Contractor, the Contractor shall notify the City in writing within 3 days of the City's notice.

**2-13.2 Integration of the Work with Separate Contractors.** If specified in the Contract Documents, the Contractor shall prepare a plan in order to integrate the work performed by Separate Contractors with the performance of the Work, and shall submit such plan to the City for approval. The plan shall be fair and reasonable for the Contractor and the Separate Contractors, and the Contractor shall work with the Separate Contractors to reach agreement on such plan. The Contractor shall arrange the performance of the Work so that the Work and the work of the Separate Contractors are, to the extent applicable, properly integrated, jointed in an acceptable manner, and performed in the proper sequence so that any disruption or damage to the Work or to any work of Separate Contractors is avoided.

**2-13.3 Coordination.** The Contractor shall provide for the coordination of the activities of the Contractor and its Subconsultants and Subcontractors with the activities of the Separate Contractors. The Contractor shall participate with all Separate Contractors and the City in reviewing and coordinating the schedules of the Separate Contractors with the Schedule. The Contractor shall make any revisions to the Schedule deemed necessary to properly incorporate the work of the Separate Contractors with the Work. To the extent (a) the date of Final Completion is extended by such Schedule revision; (b) the Contractor is required to perform its Work materially out of sequence, and in a manner which is not as efficient or cost effective as originally planned; or (c) the scope of Work is increased, an equitable adjustment in the Contract Price and the Contract Time shall be made in accordance with the provisions of Section 3, "CHANGES IN WORK."

**2-13.4 Use of Site.** The Contractor shall afford the City and all Separate Contractors reasonable opportunity for storage of materials and equipment and performance of their work. The Contractor shall connect and coordinate its Work and operations with the City and all Separate Contractors' operations as required by the Contract Documents. The City will direct the Separate Contractors to cooperate with the Contractor and to avoid actions or omissions which could interfere with or delay the activities of the Contractor.

**2-13.5 Deficiency in Work of Separate Contractors.** If part of the Contractor's Work depends on proper execution or results upon construction or operations by the City or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Separate Contractor and the City apparent discrepancies or defects in such other construction that would render it unsuitable for proper execution and results by the Contractor. The Contractor and the Separate Contractor shall use good faith efforts to resolve any such discrepancies or defects or any disagreements relating thereto. Failure of the Contractor to report shall constitute acceptance by the Contractor of the work of Separate Contractors as fit, proper, and coordinated with the Contractor's Work.

### SECTION 3 – CHANGES IN WORK

**ADD: 3-1.3 Cost Reduction Proposal.** The Contractor may submit to the Engineer in writing, proposals for modifying the Plans, Specifications, or other requirements of the Contract for the sole purpose of reducing the total cost of construction. The cost reduction proposal shall not impair, in any manner, the essential functions or characteristics of the Project such as service life, economy of operation, ease of maintenance, desired appearance, or design and safety standards.

Cost reduction proposals shall contain the following information:

- a) A description of both the existing Contract requirements for performing the Work and the proposed changes.
- b) An itemization of the Contract requirements that shall be changed if the proposal is adopted.
- c) A detailed estimate of the cost of performing the Work under the existing Contract and under the proposed change.
- d) A statement of the time within which the Engineer shall make a decision thereon.
- e) The Contract items of Work affected by the proposed changes, including any quantity variation attributable thereto.

The provisions of this section shall not be construed to require the Engineer to consider any cost reduction proposal which may be submitted hereunder; nor will the City be liable to the Contractor for failure to accept or act upon any cost reduction proposal submitted pursuant to this section, nor for any delays to the Work attributable to any such proposal. If a cost reduction proposal is similar to the information included in the Contract Documents or

adopted by the City after the advertisement for the Contract, the City will not accept such proposal and reserves the right to make such changes without compensation to the Contractor under the provisions of this section.

The Contractor shall continue to perform the Work in accordance with the requirements of the Contract until an executed Change Order, incorporating the cost reduction proposal has been issued. If an executed Change Order has not been issued by the date upon which the Contractor's cost reduction proposal specified that a decision thereon should be made, or such other date as the Contractor may subsequently have specified in writing, such cost reduction proposal shall be deemed rejected.

The Engineer shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in construction costs from the adoption of all or any part of such proposal. In determining the estimated net savings, the right is reserved to disregard the Contract Bid prices if, in the judgment of the Engineer, such prices do not represent a fair measure of the value of the Work to be performed or to be deleted.

The City reserves the right, where it deems such action appropriate, to require the Contractor to share in the City's costs of investigating a cost reduction proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall indicate its acceptance thereof in writing, and such acceptance shall constitute full authority for the City to deduct amounts payable to the Contractor from any monies due or that may become due to the Contractor under the Contract.

If the Contractor's cost reduction proposal is accepted in whole or in part, such acceptance will be by a Change Order, which shall specifically state that it is executed pursuant to this section. Such Change Order shall incorporate the changes in the Plans and Specifications which are necessary to permit the cost reduction proposal, or such part of it as has been accepted to be put into effect, and shall include any conditions upon which the City's approval thereof is based if the approval of the City is conditional.

The Change Order shall set forth the estimated net savings in the cost of performing the Work attributable to the cost reduction proposal effectuated by the Change Order, and shall further provide that the Contract cost be adjusted by crediting the City with 50% of estimated net savings amount.

Acceptance of the cost reduction proposal and performance of the Work shall not extend the time of completion of the Contract, unless specifically provided for in the Change Order authorizing the use of the cost reduction proposal.

The amount specified to accrue to the Contractor in the Change Order which effectuates a cost reduction proposal shall constitute full compensation to the Contractor for the cost reduction proposal and the performance of the Work thereof pursuant to the said Change Order.

The City expressly reserves the right to adopt a cost reduction proposal for general use on contracts administered by the City when it determines that said proposal is suitable for application to other contracts. When an accepted cost reduction proposal is adopted for

general use, only the Contractor who first submitted such proposal will be eligible for compensation pursuant to this section, and in that case, only as to those contracts awarded to him prior to submission of the accepted cost reduction proposal.

The cost reduction proposals identical or similar to previously submitted proposals will be eligible for consideration and compensation under the provisions of this section, if the identical or similar, previously submitted proposals were not adopted for general application to other contracts administered by the City. Subject to the provisions contained herein, the City or any other public agency shall have the right to use all or any part of any submitted cost reduction proposal without obligation or compensation of any kind to the Contractor.

Additional bonding may be required. The Contractor shall bear all costs to revise bonds for the Project to include the cost reduction incentive proposal Work.

### **3-2 CHANGES INITIATED BY THE AGENCY.**

**3-2.1 General:** DELETE the first paragraph in its entirety and SUBSTITUTE with the following:

Without invalidating the Contract and without notice to any surety, the City may at any time order additions, deletions, or revisions in the Project in the following manner:

- a) When the City desires a change; the City will issue a request for proposal to the Contractor.
- b) The Contractor shall submit a response within 7 Working Days.
- c) After the City reviews the Contractor's response, the City changes will be authorized by a written Change Order prepared and issued by the City.
- d) Upon receipt of any such Change Order, the Contractor shall promptly sign and return the Change Order to the City and only thereafter proceed under the applicable conditions of the Contract Documents when the City has approved the Change Order.

Should any item(s) of Work be deleted, the reduction in Contract Price shall reflect a credit for the full value of the deleted Work, including anticipated profit and overhead.

If the deleted Work exceeds 25% of the Contract Price, the Contractor may reduce the credited amount by a maximum of 5% of the amount in excess of the 25% of the Contract Price to cover overhead expenses.

If the City requests the Contractor to submit a Change Proposal, and the preparation of such Change Proposal impacts the Contract Time (e.g., other Work is suspended pending a decision on such Change Proposal or the Design Work is delayed due to the preparation of the Change Proposal) an equitable adjustment in the Contract Time shall be made.

### **3-2.2 Contract Unit Prices.**

**3-2.2.1 General.** ADD the following:

Unit Bid prices for additional bedding, imported backfill, shoring, water services, house connection sewer, abandoned water services (water stiffs), and water pollution control items shall not be subject to adjustment regardless of quantity used or if none is used.

**ADD: 3-2.6 Request for Proposal.** The Contractor's proposal in response to the City's Request for Proposal (RFP) shall be on forms acceptable to the Engineer. The Contractor's proposal shall certify in writing that the amounts included cover all direct, supplemental, indirect, consequential and cumulative costs and delays, as applicable, and that those costs and delays would be or were necessarily incurred, despite the Contractor's reasonable and diligent efforts to mitigate them. Mitigation efforts under taken by the Contractor shall be described.

**3-1.6 Proposal Content.** Where the change in Contract Price is to be determined on the basis of the "cost of the work involved", the Contractor's itemized estimates shall detail all applicable elements of cost, including, but not limited to, labor hours and payroll costs, quantities, crew mixes, production rates, material costs, Subcontractor and Supplier costs, equipment costs, and supplemental costs. Where the change in Contract Price arises from changes in the schedule of all or part of the Work, or where a change in Contract Time is sought, the submittal shall include analysis required by 6-6.5, "Contract Time Extension and Schedule Analysis" the Contractor Required Analysis. With respect to work during other than normal hours, the labor charges associated with such work shall consist of straight time wages and burden plus the appropriate overtime or shift premium with no additional burden (i.e., fringe benefits) on the premium portion.

### **3-3 EXTRA WORK.**

**3-3.1 General.** ADD the following:

The City reserves the right to direct the Contractor to solicit competitive Bids for Extra Work. If required by the City, the Contractor shall obtain competitive Bids from Subcontractors acceptable to Contractor and shall deliver such Bids to the City who will then determine which Bids will be accepted.

Any request by the Contractor to change the Contract Price to include the price of Extra Work shall be by written notice to the City and shall include itemized estimates. The Contractor's itemized estimates shall detail all applicable elements of price e.g., labor and payroll costs, quantities, crew composition, production rates, material costs, Subcontractor and Supplier costs, equipment costs, and supplemental costs. If the Contractor's request to change the Contract Price arises from changes in the Schedule affecting all or part of the Project, or if the Contractor seeks a change in the Contract Time, the Contractor's request shall include the analysis required by 6-1, "CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK."

#### **3-3.2.2 Basis for Establishing Costs.**

a) Labor: ADD the following:



The Engineer reserves the right to request certified payrolls to substantiate the actual cost of labor. The Bid item for Certified Payroll shall include payment for producing payroll certified by a California licensed Certified Public Accountant and shall be paid for on a per each basis. The certified payroll shall list the labor rates of the Contractor personnel, consultants and Subcontractors that are working on or are associated with this Project and shall be provided at the request of the Engineer.

If the Contractor's proposal for Extra Work is based upon services and work to be performed outside normal working hours, the labor charges associated with such Extra Work shall consist of straight time wages and burden plus the appropriate overtime or shift premium with no additional burden (i.e., fringe benefits) on the premium portion.

In no case shall the Contractor be required to pay more than state and or federal wage rates, whichever governs the Work or any portions thereof.

c) Tool and Equipment Rental: DELETE second paragraph in its entirety, and SUBSTITUTE the following:

Regardless of ownership, the rates to be used in determining equipment rental costs shall not exceed those listed in the latest edition of the Caltrans publication entitled "Labor Surcharge and Equipment Rental Rates" preceding the date the Work is accomplished. Where the Contractor can substantiate that the rental rates prevailing locally exceed the published rates by more than 15%, the Contractor will be entitled to a rental rate adjustment. For equipment not listed in said publication, rental rates shall not exceed listed rates prevailing locally at equipment rental agencies or distributors, at the time the Work is performed.

Whenever possible, Extra Work shall be accomplished using equipment available on Site or owned by the Contractor. If a specific piece of equipment must be rented to be used exclusively for the Extra Work, the rental rate will be the invoiced rate.

**3-3.2.3 Markup.** DELETE in its entirety and SUBSTITUTE the following:

For Change Orders, whether additive or deductive, and work classified as Extra Work the allowance for overhead and profit shall include full compensation for superintendence, insurance premiums, taxes, field office expense, extended overhead, home office overhead, and any other items of expense e.g., Change Order estimating and preparation cost, claims preparation cost, schedule analysis, project management, and field engineering.

Extended overhead shall be any and all costs incurred either in the field or at the Contractor's office resulting from Extra Work excluding direct costs related to direct hourly labor, equipment, or materials necessary to complete the Extra Work.

- a) The allowance for overhead and profit shall not exceed the values in Table 3-2.2.3(A) unless specified otherwise in the Special Provisions.

Table 3-2.2.3(A)

Component	Overhead	Profit
Labor	10%	10%
Material	10%	5%
Equipment	10%	5%

- b) To the sum of the costs and markups provided for in this subsection, actual increase in the Contractor’s bond premium caused by the Extra Work shall be added as compensation for Bonds.
- c) Work paid under Allowance Bid items is not subject to the mark-up limitations specified in Table 3-2.2.3(A) unless specified otherwise in the Special Provisions.
- d) When all or any part of the Extra Work is performed by a Subcontractor, the allowance specified herein shall be applied to the labor, materials, and equipment costs of the Subcontractor, to which the Contractor may add 5% of the Subcontractor's total cost for the Extra Work.

Regardless of the number of hierarchical tiers of Subcontractors, the 5% which is the Contractor’s allowance 3.5% (for overhead) and 1.5% (for profit) may be applied one time only to the performing Subcontractor’s total cost.

**ADD: 3-4.1 Disallowance of Entitlement.** The Contractor shall not be entitled to any adjustment in the Contract Price or Times if:

The Contractor knew of the existence of such conditions at the time the Contractor made a final commitment to the City in respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

The existence of such condition could reasonably have been discovered or revealed as a result of any record search, examination, investigation, exploration, test or study of the Site and contiguous areas suggested or required by the Bidding Documents.

**ADD: 3-6 DISPUTE RESOLUTION PROCESS.**

**3-6.1 Mandatory Non-Binding Mediation.** If a dispute arises out of, or relates to this contract, or the breach thereof, and if said dispute cannot be settled through contract provisions provided for claim settlement or negotiations, the parties agree to first endeavor to settle the dispute in an amicable manner, using mandatory mediation under the Construction Industry Mediation Rules of the American Arbitration Association or any other neutral organization agreed upon before having recourse in a court of law.

**3-6.1.1 Mandatory Mediation Costs.** The expenses of witnesses for either side shall be paid by the party producing such witnesses. All other expenses of the mediation, including

required traveling and other expenses of the mediator, and the cost of any proofs or expert advice produced at the direct request of the mediator, shall be borne equally by the parties, unless they agree otherwise.

**3-6.1.2 Selection of Mediator.** A single mediator that is acceptable to both parties shall be used to mediate the dispute. The mediator will be knowledgeable in construction aspects and may be selected from lists furnished by the American Arbitration Association (AAA) or any other agreed upon mediator. To initiate mediation, the initiating party shall serve a Request for Mediation on the opposing party. If the mediator is selected from a list provided by AAA, the initiating party shall concurrently file with AAA a “Request for Mediation” along with the appropriate fees; a copy of requested mediators marked in preference order, and, a preference for available dates.

If AAA is selected to coordinate the mediation (Administrator), within 10 Working Days from the receipt of the initiating party’s Request for Mediation, the opposing party shall file the following: a copy of the list of the preferred mediators listed in preference order, after striking any mediators to which they have any factual objection, and, a preference for available dates. If the parties agree not to use AAA, then a mutually agreed upon mediator, date and place for the mediation shall be agreed upon.

The Administrator will appoint or the parties shall agree upon the highest, mutually preferred, Mediator from the individual parties’ lists who is available to serve within the designated time frames.

**3-6.1.3 Conduct of Mediation Sessions.** Mediation hearings will be conducted in an informal manner and discovery will not be allowed.

The discussions, statements, or admissions will be confidential to the proceedings and will not be used for any other purpose as it relates to the party’s legal position. The parties may agree to exchange any information they deem necessary.

Both parties shall have an authorized representative attend the mediation. Each representative shall have the authority to recommend entering into a settlement. Either party may have attorney(s), witnesses or expert(s) present. Either party may request a list of witnesses and notification whether attorney(s) will be present.

Any resultant agreements from mediation shall be documented in writing. Mediation results and documentation, by themselves, shall be “non-binding” and inadmissible for any purpose in any legal proceeding, unless such admission is otherwise agreed upon, in writing, by both parties. Mediators shall not be subject to any subpoena or liability and their actions shall not be subject to discovery.

**ADD: 3-6.2 Dispute Resolution Board.** If mediation is unsuccessful in settling the dispute and if both parties agree, a no mandatory dispute resolution board process may be used. The parties may impanel a Dispute Resolution Board (DRB) and the DRB process shall be conducted in accordance with the City’s alternative dispute resolution process, utilizing board members who are individuals who have expertise in construction. The selection process shall be administered by the American Arbitration Association, or any other such

neutral organization selected by the City, hereinafter called the "Administrator". Claims made for \$60,000 or less shall be heard by 1 DRB member and claims for more than \$60,000 shall be heard by 3 DRB members.

To initiate the DRB procedures, the parties shall jointly execute and file a "Submission to Dispute Resolution Board Procedures" request with the Administrator. Upon receipt by the Administrator of the submission form, the Administrator shall furnish to the parties a list of individuals skilled in dispute resolution and having expertise in construction from which to select the Dispute Resolution Board. Within 10 Working Days from the date the list is sent to the parties, the parties shall return the list to the Administrator, striking any individuals to which the parties have any factual objections and numbering the remaining in preference order. The Administrator shall appoint the highest mutually preferred individuals to the DRB that are available to serve in the time frame designated above.

**3-6.2.1 Dispute Resolution Board Costs.** The costs for DRB hearings and proceedings, which include those of either the 1 person or 3 person boards hearing the dispute, will be shared equally by both parties. Fees shall be jointly negotiated by both parties directly with the DRB Administrator.

**3-6.2.2 Conduct of Dispute Resolution Board Hearings.** DRB hearings shall be informal and discovery shall not be permitted. The parties may agree to exchange any information they deem necessary. Each party shall have a maximum of 2 hours for presentation, unless otherwise agreed upon. Outside experts, including attorneys, may address their specialty if the opposing party is notified in advance. Each party will be given full opportunity to present its views and supporting information, including documents, drawings, or other pertinent material. All such evidence and displays shall be considered confidential and shall be retained by the presenting party. Discussions or admissions during DRB discussions shall be considered as part of privileged settlement discussions, without prejudice to any party's legal position.

Any resultant agreements from a DRB Hearing shall be documented, in writing, by both parties. The DRB results and documentation, by themselves, shall be non-binding and inadmissible for any purpose in any legal proceeding, unless such admission is otherwise agreed upon, in writing, by both parties. DRB members shall not be subject to any subpoena or liability and their actions shall not be subject to discovery.

Within 10 Working Days after the hearing, the DRB will make its recommendation, in writing, for resolution of the dispute to all parties. The DRB will strive for consensus and unanimity in its decision making. If such is unattainable, however, separate written recommendations may be made as majority or minority reports.

**ADD: 3-7 CLAIMS.** The Contractor shall submit a Claim to the City if a dispute occurs that arises from or relates to the Contract. The Claim shall seek all relief to which the Contractor asserts it is entitled as a result of the event(s) giving rise to the dispute. The Contractor shall substantiate Claims, and shall process Claims in accordance with this section. The Contractor's failure to process a Claim in accordance with this section shall constitute a

waiver of all relief associated with the dispute. Claims shall be subject to 6-11, "CITY'S RIGHT TO AUDIT."

Contractor shall continue to perform the Services and the Work and maintain the Schedule during any dispute proceedings and City will continue to make payments for undisputed Services and Work.

A claim arising under the Contract, unlike a claim relating to the Contract, is a claim that can be resolved under a Contract provision that provides for or excludes the relief sought by the claimant. Such claims shall be resolved under the applicable provisions of the Contract.

The City's claims process in this section shall not relieve Contractor of his statutory obligations to present claims prior to any action under the California Government Code.

**3-7.1 Time of Claim.** The Contractor shall promptly, but in no event later than 30 days after the event(s) giving rise to the Claim, deliver the Claim to the City. The Contractor shall not process a Claim unless the City has previously denied a request by the Contractor for a Change Order that sought the relief to be pursued in the Claim.

**3-7.2 Claim Certification Requirements.** If the Claim seeks an increase in the Contract Price, the Contract Time, or both, the Contractor shall submit with the Claim an affidavit certifying that:

- a) The Claim is made in good faith and covers all costs and delays to which the Contractor is entitled as a result of the event(s) giving rise to the Claim;
- b) The amount claimed accurately reflects the adjustments in the Contract Price, the Contract Time, or both to which the Contractor believes it is entitled; and
- c) All supporting costs and pricing data are current, accurate, complete, and represent the best of the Contractor's knowledge and belief.

The Contractor shall ensure that the affidavit is executed by an official who has the authority to legally bind Contractor.

**3-7.3 Claim Resolution Process.** The Contractor shall submit claim certification and request for a settlement meeting and the City's Determination to the Construction Manager within 20 Working Days of receipt of the Construction Manager's initial determination.

**3-7.4 Initial Determination.** Initial Determination is the City's written approval or non-approval of a Claim from the Contractor. Within 30 days of receipt of a Claim, the City will deliver an Initial Determination to the Contractor. The City will not consider and will return to the Contractor any written demand that does not conform to the requirements of 3-7, "CLAIMS."

**3-7.5 Final Determination.** If the Contractor disagrees with the Initial Determination, the Contractor may request a Final Determination. The Contractor's request shall be in writing and shall be delivered to the City within 30 days of the date of the Initial Determination. The City will deliver a Final Determination to the Contractor within 30 days after receipt of the

Contractor's written request. Final Determination is the City's final written decision on the Contractor's appeal of the City's Initial Determination on the Contractor's Claim.

**3-7.6 Settlement Meeting.** Within 15 Working Days of receipt of the Contractor's request for a "Settlement Meeting", the Construction Manager will schedule a "Settlement Meeting" between the Contractor's representative, the City's representative, and the Construction Manager. This meeting will be an opportunity for the Contractor to explain its claim to senior management of the City. If a settlement agreement cannot be reached, the Construction Manager and the City will proceed to make a joint written determination.

**3-7.7 City's Determination.** The City will make a written determination within 20 Working Days after the settlement meeting. The written determination shall be final and binding on the Contractor unless the Contractor notifies the City and the Construction Manager in writing of its objection within 15 Working Days after receipt of the written determination, and files a "Request for Mediation" in accordance with 3-6, "DISPUTE RESOLUTION PROCEDURES." Failure to give notice of objection within said 15 Working Days period shall be deemed to be a waiver of its right to pursue the claim.

**3-7.8 Mandatory Assistance.** If a third party dispute or litigation, or both, arises out of, or relates in any way to the Services provided under this contract, upon the City's request, the Contractor agrees to assist in resolving the dispute or litigation. the Contractor assistance includes, but is not limited to, providing professional consultations, attending mediations, arbitrations, depositions, trials or any event related to the dispute resolution, litigation, or both.

**3-7.8.1 Attorney Fees Related To Mandatory Assistance.** In providing the City with dispute or litigation assistance, the Contractor and or Subcontractors or their agents, officers, and employees may incur expenses and or costs. The Contractor agrees that any attorney fees it may incur are not reimbursable.

**3-7.8.2 Compensation for Mandatory Assistance.** The City will reimburse the Contractor for reasonable fees and expenses incurred by the Contractor for any required assistance rendered in accordance with 3-7.9, "Mandatory Assistance" as Additional Services. The City in its sole discretion shall determine whether these fees and expenses were necessary due to the conduct of or failure to act by the Contractor or Subcontractors or their respective agents, officers, and employees. If the City determines that the basis of the dispute or litigation in which these fees and expenses were incurred were the result of the conduct of or failure to act by the Contractor or Subcontractors or their respective agents, officers, and employees, in part or in whole, the City shall be entitled to be reimbursed for any payments made for these fees and expenses.

Reimbursement may be through any legal means necessary, including the City's withholding of payment.

**3-7.9 Costs Relating To Weather Damage.** The Contractor shall have no claims against the City for damages for any injury to Work, resulting from the action of the elements or weather. If, however, in the opinion of the Construction Manager, the Contractor has made

all reasonable efforts to protect the Work, the Contractor may be granted a reasonable extension of Contract Time to make proper repairs, renewals, and replacements of Work in accordance with Section 6, "PROSECUTION, PROGRESS, AND ACCEPTANCE OF THE WORK."

### SECTION 4 – CONTROL OF MATERIALS

**4-1.3.2 Inspection of Material Not Locally Produced.** ADD the following paragraph:

When required by the Special Provisions or as noted on the Plans, the Engineer may elect to perform inspection of an out-of-town manufacturer. The Contractor shall incur all inspection costs. These costs shall include travel expenses, a per diem allowance for lodging, meals, and car rental per day. If the manufacturing plant operates a double shift, a double shift shall be figured in the inspection costs. At the option of the Engineer, full time inspection will continue for the length of the manufacturing period. If the manufacturing period will exceed 3 consecutive weeks, the expenses of the Engineer's supervisor will be included in the figures for one 2-day trip to the site per month. Inspection costs paid by the Contractor will not include the wages of the Engineer and their supervisor if employed by the City, when required by the Special Provisions or as shown on Plans.

**ADD: 4-1.3.4 Inspection Paid For By the Contractor.** The Contractor shall employ and pay for the services of a qualified inspection agency to perform any specialty inspection services required by the Contract Documents.

If no Bid item is provided, payment shall be included in various Bid items.

**ADD: 4-1.3.5 Special Inspection.** Special inspection and testing by the Special Inspectors shall meet the minimum requirements of the building codes specified in the Contract Documents.

Each Special Inspector shall be certified by the City's Development Services Department (DSD) prior to performing any duties. Special Inspectors shall carry approved identification, as stipulated by the DSD, when performing the function of a Special Inspector.

a) Contractor Responsibilities:

- i. The Contractor shall notify the Special Inspector prior to performing any item of Work that requires Special Inspection and shall review the Contract Documents and perform any necessary preparatory Work at the Site.
- ii. The Contractor is responsible for providing the Special Inspector access to approved Drawings and Specifications at the Project's Site.
- iii. The Contractor shall be responsible for retaining at the Site all Special Inspection records submitted by the Special Inspector and providing these records for review by the Development Services Department inspector upon request.



- iv. The Contractor shall not perform any items of Work that requires Special Inspection without the presence of the Special Inspector/s during the performance of that Work. Work requiring continuous inspection performed without Special Inspection shall be subject to removal.
  - v. The Contractor shall employ a sufficient number of Special Inspectors to assure inspection of all Work requiring Special Inspection without hindering the progress of the Work.
  - vi. Special Inspector shall comply with all requirements of the Development Services Department and the building permit.
  - vii. Upon completion of task requiring Special Inspection, the Contractor shall submit to the Engineer all Special Inspection reports that certify that the Work requiring Special Inspection has been completed in accordance with the Contract Documents and the applicable building codes and approved by the Engineer and DSD.
- b) Duties and responsibilities of the Special Inspector. The Contractor shall ensure the following requirements are met by the Special Inspectors employed by the Contractor:
- i. The Special Inspector is not authorized to do any of the following:
  - ii. To inspect or approve any items of Work for which the building permit has not been issued;
  - iii. To inspect or approve any items of Work before the DSD has made the initial inspection. Deviations from this procedure shall be requested in writing from the DSD;
  - iv. To inspect or approve any items of Work other than that for which they are specifically certified;
  - v. To accept alternate materials, structural changes, or revisions to Drawings.
  - vi. Observe Work: The Special Inspector shall observe the Work for conformance with the DSD approved design Drawings and Specifications. Shop Drawings, Working Drawings, or both may be used only as an aid to inspection. Special Inspections are to be performed on a continuous basis, meaning that the Special Inspector is on site at all times observing the Work requiring Special Inspection.
  - vii. Periodic inspections, if any, shall have prior approval by the DSD based on a separate written plan prepared by the Contractor and reviewed and approved by the DSD and the Engineer.
  - viii. The Special Inspector shall bring nonconforming items to the immediate attention of the Contractor and note all such items in the daily report. If any item is not resolved in a timely manner or is about to be incorporated in the

Work the Special Inspector shall immediately notify the DSD (by telephone or in person), notify the Engineer, and post a discrepancy notice.

- ix. Furnish Daily Reports: On request, each Special Inspector shall complete and sign both the Special Inspection record and the daily report form for each daily inspection to remain at the Site with the Contractor for review by the Engineer, DSD's inspector.
- x. The Special Inspector or inspection agency shall furnish weekly reports of tests and inspections directly to the Engineer, DSD and others as designated on the plans, permits or herein. These reports shall include the following:
  - 1. Description of daily inspections and tests made with applicable locations;
  - 2. Listing of all nonconforming items;
  - 3. Report on how nonconforming items were resolved or unresolved as applicable; and
  - 4. Itemized changes authorized by the Engineer and DSD if not included in nonconformance items.
- xi. The Special Inspector shall submit a final signed report to the Engineer and DSD stating that Work requiring Special Inspection and testing were inspected, tested and reported, and to the best of Special Inspector's knowledge, is in conformance with the approved drawings and Contract Documents, approved revisions and the applicable workmanship provisions of the building codes whichever is in effect on the permitted Plans. Items not in conformance, unresolved items or any discrepancies in inspection coverage (i.e., missed inspections, periodic inspections when continuous was required, etc.) shall be specifically itemized in this report. Final inspection of the structure will not be scheduled until the final report for all Work items requiring Special Inspection have been reviewed and approved by the Engineer and DSD.

### SECTION 5 - UTILITIES

#### **5-1 LOCATION.** ADD the following:

The City does not warrant the accuracy or completeness of the location and type of existing utilities and substructures shown on the Plans. The Contractor is responsible to accurately locate, by potholing or other suitable methods, all existing utilities such as service connections and substructures as shown on the Plans and marked out by Underground Service Alert (USA), to prevent damage to such facilities and to identify any conflicts with the proposed work.

The Contractor shall fill all potholes on the same day of excavation, and, if no trenching is performed within 10 Working Days, fully restore all potholes and any damaged surrounding areas to their original condition unless otherwise allowed by the Engineer.

There will be no other compensation for potholing at any specific location required by the Plans. Neither will showing some specific locations on the Plans relieve the Contractor of the responsibility to pothole as previously mentioned in this Subsection.

The Contractor shall notify the Engineer, in writing, of any conflicts between existing utilities and the proposed work a minimum of 5 Working Days, and 300' in advance of the work to provide adequate time, and space for any changes to the work needed to avoid unforeseen conflicts. The Contractor shall perform utility location far enough in advance of the Work to provide the written notification specified in this section.

The written notification shall include; date of utility location, method of utility location, type, size, and material of utility, horizontal location (to the nearest Station), depth for existing pavement or ground surface to top and bottom of utility, suspected ownership of utility, and the date on which any conflict with the utility will impact the critical path(s).

For existing utilities shown on the Plans or marked out by USA, the Contractor shall not be entitled to an extension of Contract Time or compensation for delay if direction is provided by the Engineer within 5 Working Days from receipt of the Contractor's written notification of the utility conflict. If the Engineer does not provide direction to the Contractor within the 5 Working Days, an extension of Contract Time may be granted in accordance with Section 6, beginning on the sixth Working Day after receipt of the Contractor's written notification.

**5-2 PROTECTION.** ADD the following:

When existing underground utilities are undercut the Contractor shall backfill for at least 12" all around the undercut utility. The backfill material shall conform to 306-1.2.1, "Bedding."

When a one-inch or smaller water service is damaged during trenching operations, a minimum four-foot section of that service shall be removed and replaced with two 45 degree "ells" and new copper tubing bent to a minimum 12" radius.

The City may decide to perform the repairs to water and sewer mains, water services, and sewer laterals with the City Forces at the discretion of the Engineer at the Contractor's expense.

The Contractor shall notify the City at least 2 Working Days prior to start of excavation, unless, earlier notice is required by another permit or plan.

**ADD: 5-7 Payment.** Unless otherwise specified in the Contract Documents, payment for items of work related to Utilities shall be included in the various Bid items.

Potholing of utilities as shown on the Plans and performed for the tunneling of the replumbs shall be included in the payment for replumbing.

Potholing for existing utilities which are not shown on the Plans, but marked out by USA shall be as directed by the Engineer and paid for according to 3-3, "EXTRA WORK."

**SECTION 6 – PROSECUTION, PROGRESS, AND ACCEPTANCE OF WORK**

**6-1.1 Construction Schedule.** ADD the following:

- a) Upon the request of the Contractor, the City may delay the issuance of the Notice to Proceed (NTP) up to 5 Working Days from the date of the preconstruction conference. No time extension of this delay will be allowed.
- b) The Contractor shall be responsible for developing, coordinating, revising, updating, and maintaining the cost loaded construction schedule (Schedule) utilizing the Critical Path Method (CPM).
- c) All versions of the Schedule shall be based solely on the Work as awarded, and shall exclude any substitute proposals even if the Contractor pursues a substitution in accordance with provisions of the Contract.
- d) The approved proposals and approved Change Orders shall be included in the Schedule updates.
- e) Total float is the number of days by which a part of the Work in the Schedule may be delayed from its early dates without necessarily extending the Contract Time. The Contract float is the number of days between the Contractor's anticipated date for early completion of the Work, or specified part, and the corresponding Contract Time. Total float and Contract Time float belong to the Project and are not for the exclusive benefit of any Party. They shall be available to the City or the Contractor to accommodate changes in the Work or to mitigate the effect of events which may delay performance or completion.
- f) Monthly progress payments are contingent upon the submittal of an updated Schedule to the Engineer. The City may refuse to recommend the whole or part of any monthly payment if, in the Engineer's opinion, the Contractor's failure, or refusal to provide the required Schedule information precludes a proper evaluation of the Contractor's ability to complete Project within the Contract Time.
- g) The Schedule shall show a breakdown of Work into activities and relationships to the extent required to effectively manage the Work. The Schedule shall show the division of the Work into activities and specify the progression from the Notice to Proceed (NTP) to the end of the Contract Time.
- h) The Schedule shall include appropriate time allowances and constraints for submittals, items of interface with Work performed by others, and specified construction, start-up and performance tests.
- i) The Contractor shall include in the Schedule inclusive in the Contract Time allotted, three 3 Working Days for the City to conduct a thorough walk-through.
- j) The Contractor shall include in the Schedule inclusive in the Contract Time allotted 10 Working Days for generation of the punchlist. The Contractor shall Work diligently to

complete all punchlist items within 20 Working Days after officially being provided the punchlist by the Engineer.

- k) If the Contractor modifies or changes the Schedule, for Change Order Work or otherwise, the Engineer shall be notified in writing with an explanation.
- l) Comments made by the Engineer on the Schedule during review will not relieve the Contractor from compliance with requirements of the Contract. The Engineer may request that the Contractor and major Subcontractors (defined herein as being any Subcontractor or Supplier with 5% or more of the value of the Contract) participate in review of any Schedule submission. The Schedule revisions shall be submitted within 10 Working Days after the Engineer's review.
- m) The Schedule shall show work to be done by the City personnel, such as but not limited to, submittal reviews (separate tasks for each), sewer televising, water main connections, water testing, and operational performance tests as separate tasks. The Schedule shall show appropriate time allowances for Work performed by other agencies.
- n) If completion of any part of the Work, delivery of equipment or materials, or provision of the Contractor submittals is behind schedule and will impact the completion date of the Work, the Contractor shall submit a written recovery plan acceptable to the Engineer for completing the Work by the current Contract completion date.
- o) The Contractor shall not be entitled to any extension in Contract Time, or recovery for any delay incurred because of extensions in an early completion date, until all Contract float is used, performance of the Work extends beyond the corresponding Contract Time, and a recovery plan is submitted demonstrating that the delay cannot be mitigated or offset through actions such as rescheduling Work.
- p) Misrepresentation of actual Work durations in order to suppress available float time shall be cause for rejection of the Schedule and any revisions or updates.
- q) The Schedule shall include procurement related activities which lead to the delivery of permanent materials to the Site in a timely manner. Procurement activities include activities such as preparation of Shop Drawings and Working Drawings, review and acceptance of Shop Drawings and Working Drawings, materials fabrication, materials delivery, etc., as appropriate.
- r) The Schedule shall be reasonably balanced over the construction duration. Upon receipt, the Engineer will review the Schedule and provide comments, as appropriate, for revision by the Contractor.
- s) Each Schedule activity shall be assigned a budget. Separate Bid items shall be separate activities. The Schedule shall specify costs for each phase of the Contract. The cost value of all Schedule activities shall equal the Contract values shown in the Bid both individually and in total and include Change Orders.

- t) If the Engineer questions the logic of the Schedule, the Engineer may at any time request a Schedule narrative that describes the approach to the Work and the rationale used to develop the Schedule relationships and logic.
- u) When specified in the Contract Documents, the 120-day Plant Establishment Period is included in the stipulated Contract Time and will begin with the acceptance of the installation of the re-vegetation plan in accordance with the Special Provisions. No work shall be allowed within and/or adjacent, as determined and directed by the Project Biologist, to environmental sensitive habitats between March 1 and August 15 due to the breeding season of the Coastal California Gnatcatcher.
- v) For phased funded contracts, the Schedule shall include the Work to be completed as part of the first phase of the Phased Funding Schedule and all remaining phases.

**ADD: 6-1.1.1 Contracts Less Than \$250,000 In Value.** The Contractor shall provide the Schedule to the Engineer at the preconstruction meeting. At a minimum, the Schedule shall conform to the following:

- a) Provide a fully developed horizontal bar-chart type schedule.
- b) Provide a separate time bar for each significant construction activity.
- c) Provide a continuous vertical line to identify the first Working Day of each week.
- d) Within each time bar, indicate estimated completion percentage in 10% increments. As Work progresses, place a contrasting mark in each bar to indicate actual completion.
- e) Indicate graphically sequences necessary for completion of related portions of the Work.
- f) Be of sufficient size to show data for the entire Contract Time.

**ADD: 6-1.1.2 Contracts With More Than \$250,000 In Value.** The Contractor shall provide the Schedule to the Engineer no later than the date of the pre-construction meeting. The Contractor may provide a look-ahead schedule for the first 90 days of the Contract Time to the Engineer, prepared in accordance with 6-1, "CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK." If the Contractor selects to provide a 90 days look-ahead schedule, the Schedule covering the full Contract Time shall be submitted and approved within 4 weeks after NTP.

The Contractor shall use any scheduling product by ORACLE'S PRIMAVERA or equal program capable of producing the required information in accordance with 6-1, "CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK", for the computerized CPM scheduling and monthly update reports. Electronic file submittals shall be compatible with Primavera P6 format used by the City.

In addition to the electronic submittal of the Schedule, the Contractor shall provide hard copy tabular reports in accordance with 2-5.3, "Submittals." The Schedule shall contain as a minimum the following information:

- a) The Schedule shall include the Project name, City's Project identification numbers, the Contractor's name, address and phone number, dates of original schedule and latest revision, revision number, and Contract Time.
- b) The Schedule shall be of sufficient detail to assure adequate planning has been done for proper execution of the Work such that, in the sole judgment of the Engineer, it provides an appropriate basis for monitoring progress.
- c) The Schedule shall show the sequence, duration, both early and actual start and end dates of each activity, interdependence, critical path and percentage of completion status of all activities required for the complete performance of Work. It shall begin with the date of issuance of the NTP and include construction activities including submittal review, operation checks, final walk-through, and punchlist generation.
- d) The Schedule shall include the cost associated with each activity and the total cost for each phase of the Contract. The cost information shown in the Schedule will be used for schedule evaluation and budgetary forecasting purposes only, and shall not be construed as entitlement for payment.
- e) The graphical reports when specified or required by the Engineer shall be in a precedence diagram format, shall be plotted on a time-scaled calendar, and shall expressly identify the Contract Time, the critical path(s) and activities.
- f) Activities shall be shown on their early dates, with their total float noted beside them. Connections between activities whether on the same sheet or on different sheets, shall identify both predecessor and successor Work. Activity data shall include description of Work, activity costs (budget), activity duration and special codes.
- g) Activity data shall include description of the Work, activity duration, percent completed, and any special codes required with the following information:
  - i. Current status of the activity.
  - ii. Remaining duration of the activity.
  - iii. Actual start and finish dates for the activity in progress or completed.
- h) The Schedule updates shall include both forecast and actual cost and schedule data.
- i) The sub-tasks for lump sum Bid items shown on the Schedule shall be submitted in accordance with 9-2, "LUMP SUM ITEMS."
- j) The Schedule shall indicate the estimated person days and material quantities for each construction activity.
- k) For those activities started but not yet completed at the time of submittal, the updated Schedule shall reflect the percentage of costs remaining, as agreed between the Contractor and the Engineer, for an estimate of the remaining budget.



### **6-1.2 Commencement of Work.** ADD the following:

Unless specifically authorized by City in writing, the Contractor shall not begin any construction activities on the Project until CEQA review has been completed as evidenced by certification of an environmental impact report, mitigated negative declaration, negative declaration, or by issuance of an exemption, as applicable.

For Design-Build contracts, the Contractor shall be responsible for complying with all requirements of the Final Environmental Document, including incorporating environmental considerations into the Project design, modifying the Project design, where applicable, and mitigating impacts.

**ADD: 6-1.3 Work Outside Normal Hours.** 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, Work at the Site shall be performed during normal working hours. Normal working hours refers to the working hours identified in the Contract Documents. The Contractor shall not work during non normal working hours or on Saturday, Sunday, or any the City observed holiday without the Engineer's written consent. If approved, night work shall be completed at night between the hours of 7:00 P.M. - 3:00 A.M. unless otherwise specified on the Plans, in the Special Provisions, or on the traffic control permits.

The Engineer will coordinate inspection staff, to the extent possible, to accommodate Project inspection requirements. If the Contractor's request is approved, the Contractor will be responsible for reimbursing the City for all costs to provide inspection services required to monitor the Work outside of normal working hours. The Contractor shall be billed at the stipulated hourly rate to cover the City's expenses for the inspection services and a deductive Change Order will be issued.

The Contractor shall be required to obtain a noise abatement permit when such a permit is required to perform Work outside the normal working hours.

Payment for the permits shall be included in the various Bid items.

### **ADD: 6-1.4 Phased Funding.**

**6-1.4.1 General.** Phase Funding is a means by which large projects, encompassing multiple tasks and taking place over an extended period of time, may be budgeted and appropriated in a multi-phase plan and contracted accordingly that maximizes the City's use of available funds. If this contract is specified on the Contract Documents to be subject to phased funding, the phased funding requirements in these specifications shall apply.

The decision to utilize phased funding shall be solely at the discretion of the City.

**6-1.4.2 Pre-Award Schedule.** The Pre-Award Schedule is a cost-loaded CPM schedule prepared in accordance with 6-1, "CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK" showing all activities with costs, durations, and dependencies, for the first phase of the contract. The Pre-Award Schedule shall be used as a basis for the first Phased Funding Schedule Agreement which will be developed by the City.

For phased funded contracts, the City typically secures enough funds for the first 90 days of the contract prior to award. Within 10 Working Days after Bid opening date the Apparent Low Bidder shall contact the Project Manager to discuss fund availability and the duration of the first phase and submit the Pre-Award Schedule to the City for approval and preparation of the first Phased Funding Schedule Agreement. If the Bid submitted by the Apparent Low Bidder is rejected by the City for any reason, then within 5 Working Days after receiving notice, the next Apparent Low Bidder shall provide the Pre-Award Schedule. This process shall continue until the City has selected the lowest responsible and reliable Bidder or has decided to reject all Bids.

The Contractor shall coordinate the estimated construction start date with the City's Project Manager. Upon receipt, the Project Manager will review the Pre-Award Schedule and provide comments, as appropriate, for revision by the Contractor. The Project Manager may require backup documentation and calculations to justify schedules.

**6-1.4.3 First Phased Funding Schedule Agreement.** The first Phased Funding Schedule Agreement shall show the fund availability for the first phase. Within 22 Working Days from the date of the Bid Opening or notice to the next Apparent Low Bidder (whichever occurs last) and once a Pre-Award Schedule is accepted by the City, the City will present the first Phased Funding Schedule Agreement to the Contractor that is selected as the lowest responsible and reliable Bidder as defined in the San Diego Municipal Code, §22.3003.

At the Project Manager's request, the Contractor shall meet with the Project Manager before execution of the first Phased Funding Schedule Agreement to discuss the Project Manager's comments and requests for revision to the Pre-Award Schedule.

Failure by the Contractor to perform the following may result in the Bid being rejected as non-responsive:

- a) meet with the Project Manager, if requested to do so, to discuss and respond to the City comments regarding the Pre-Award Schedule,
- b) revise the Pre-Award Schedule as requested by the City within the specified 22 Working Days timeframe, or
- c) execute the first Phased Funding Schedule Agreement within a day after receipt.

Once executed by both parties, the first Phased Funding Schedule Agreement shall become part of the Contract Documents. The first Phased Funding Schedule Agreement Form is included in the Bidding Documents.

The City reserves the right to award the first phase with duration of fewer than 90 Working Days.

**6-1.4.4 Final Phased Funding Schedule Agreement.** After Award the Contractor's approved Schedule shall serve as the basis for the final Phased Funding Schedule Agreement, which includes the total contract amount and all phases. The City and Contractor may mutually agree to revise the first phase; however, the total funds allocated as part of the previously approved Pre-Award Schedule shall not be exceeded.

The final Phased Funding Schedule Agreement shall define payment limitations and the respective obligations of the parties in accordance with 9-3.7, "Phased Funding Compensation."

**ADD: 6-1.5 Contract Time Extensions.** The Contract Time shall not be modified except by Change Order. The Contractor shall immediately submit to the City a written request for a Change Order to modify the Contract Time, but in no event later than 24 hours after the occurrence and discovery of the event(s) giving rise to the request. The Contractor shall include in its request a general description of the basis for and the estimated length of any extension and submit supporting data. Any City approval of a request shall be contingent upon the Contractor's submission of a written statement that the Contract Time extension reflects the entire extension to which the Contractor is entitled as a result of the occurrence of the event(s).

The City will not grant an extension in Contract Time unless the Contractor demonstrates through an analysis of the critical path that: 1) the increases in the time to perform all or part of the Project, beyond the Contract Time, arise from unforeseeable causes beyond the control and without the fault or negligence of the Contractor, their agents, officers, and/or employees; and 2) the causes actually rendered performance of all or part of the Project beyond the corresponding Contract Time, despite the Contractor's reasonable and diligent actions to avoid the extension.

Delays attributable to and within the control of the Contractor's Subcontractors shall be deemed to be delays within the control of the Contractor. The City will not allow time extensions for these delays.

The City will issue a periodic (usually weekly or monthly) document that will stipulate the Contract Time. If the Contractor does not agree with this document, the Contractor shall within 15 days after receipt of the statement submit to the City for review a written protest supporting the Contractor's objections to the document. The Contractor's failure to file a timely protest shall constitute the Contractor's acceptance of the City's weekly document. If the Contractor's protest is considered to be a claim for time extension, it shall be subject to 3-7, "Claims."

The Contractor shall be fully responsible for any delays arising from the Contractor's design of the Project when engineering services are included in the Work.

**ADD:6-1.6 Excusable Delays.** To the extent any of the following events results in an actual delay in the Work affecting Work activities on the critical path, such shall constitute an "Excusable Delay", to the extent not set forth below, a delay will be considered an "Inexcusable Delay":

- a) Failure or inability of the City to make available any portion or the entire Site in accordance with the requirements of the Schedule.
- b) Failure or inability of the City or the Contractor to obtain necessary zoning changes, variances, code changes, permits or approvals from any governmental authority, or failure to obtain any street or alley vacations required for the performance of the Work, except to the extent due to the fault or neglect of the Contractor as determined by the City.

- c) Delays resulting from the acts or omissions of Separate Contractors, except to the extent Separate Contractors perform their work properly and in accordance with the Schedule.
- d) Delays resulting from Force Majeure.
- e) Differing, unusual or concealed site conditions that could not reasonably have been anticipated by the Contractor in preparing the Schedule.
- f) Delays resulting from the existence or discovery of hazardous materials or waste on the Site not brought to the Site by the Contractor.
- g) Delays resulting from changes in Applicable Laws occurring after the date of execution of this contract;
- h) Delays occurring due to the acts or omissions of the City and those within the control of the City.
- i) Delays resulting from the City-mandated suspensions of Work.

**ADD: 6-1.7 Payment.** Payment for Schedule shall be included in the various Bid items unless a Bid item has been provided.

**ADD: 6-2.1 Moratoriums.** If moratorium periods are specified in the Special Provisions, then the Contractor shall completely demobilize all construction related activity, equipment and materials within stated limits prior to beginning of moratorium period(s), at no additional cost to the City. The Work that is started prior to the moratorium shall be completed prior to the moratorium start date. The Site shall be fully restored and cleaned prior to each moratorium, including, but not limited to, sidewalks, streets, and paving. No equipment, materials, or traffic control shall be left on-site during the moratorium period(s). The Contractor will not be entitled to any additional costs for remobilization to continue the work after the moratorium periods.

All streets shall be Portland Cement Concrete capped during all moratorium periods. No temporary resurfacing shall be allowed. The City reserves the right to shut down any trenching operation if the Contractor is not proceeding within a reasonable period of time to restore the pavement and clean the Site. A reasonable period of time is considered to be 5 to 10 Working Days after backfilling any one block (approximately 600') of sewer main, storm drain, or any one section of water main to be tested. The period of time allowed will be determined by the Engineer and is not subject to dispute by the Contractor.

Payment for compliance with moratorium requirements shall be included in the various Bid items.

**6-4 DEFAULT BY THE CONTRACTOR.** DELETE the first paragraph in its entirety and SUBSTITUTE the following:

If one or more of the following events occur prior to acceptance of the Work, the Contractor shall be considered in default of the Contract:

- a) becomes insolvent, assigns its assets for the benefit of its creditors, is unable to pay debts as they become due, or is otherwise financially unable to complete the Work;
- b) abandons the Work by failing to report to the Work Site and diligently prosecute the Work;
- c) disregards or violates provisions of the Contract Documents or City's instructions;
- d) fails to prosecute the Work according to the approved schedule without excusable delays in conformance with 6-6, "DELAYS AND EXTENSIONS OF TIME;"
- e) disregards Laws or Regulations of any public body having jurisdiction;
- f) commits continuous or repeated violations of approved or legislated safety requirements; or
- g) failure to notify the Engineer upon discovery of items of Native American, Archaeological, or Paleontological interests.

Notices under this section shall be in accordance with 2-1.1.3, "Special Notices."

The City will notify the Contractor and the Surety of the City's intent to find the Contractor in default. If Contractor fails to commence satisfactory correction of a default within 5 Working Days after receipt of a notice to cure, or to diligently continue satisfactory and timely correction of the default thereafter, then the City:

- a) may terminate the Contractor's right to perform under this Agreement by issuing a default notification to the Contractor and its Surety,
- b) may use any materials, equipment, tools or other facilities furnished by the Contractor to complete the Contractor's work without any further compensation to the Contractor for such use, and
- c) may furnish those materials, equipment, tools and other facilities to others to the extent the City deems necessary to maintain the orderly progress of the Work.

The Contractor shall be entitled to no further payment until the remaining portion of the Work has been completed. The Contractor will be paid the actual amount due based on Contract Unit Prices or lump sum Bid and the quantity of the Work completed at the time of default, less damages caused to the City by acts of the Contractor.

Costs incurred by the City in performing the Contractor's work, plus a markup of 15% on those costs for overhead, shall be deducted from any money due or to become due to the Contractor. The Contractor shall pay to the City any amount by which those costs and markup exceed the unpaid balance of the Contract Price.

Upon receipt of the Notice of Termination for Default, the Surety shall immediately takeover and assume the control of and perform the Work as the successor to the Contractor. The Surety shall assume all rights, obligations, and liabilities, including liquidated damages that have accrued under the Contract. The Surety shall maintain the Site and all of its safety controls. If the Surety fails to maintain the Site, the City may correct unsafe conditions and

charge the Surety for all costs incurred. When the Surety assumes any part of the Work, it shall take the Contractor's place in all respects for that part, and will be paid by the City for Work performed by it in accordance with the Contract. When the Surety assumes the entire Contract, all money due the Contractor at the time of its default shall be payable to the Surety as the Work progresses, subject to the terms of the Contract.

Within 15 Working Days of the notice of Termination for Default, the Surety shall provide a written plan detailing the course of action it intends to take to remedy the default. The City will review and notify the Surety if the plan is satisfactory.

If the Surety fails to submit the plan or to maintain progress on the plan once it's been approved by the City, the City may exclude the Surety from the premises. The City may then take possession of all material and equipment and complete the Work by the City forces, by letting the unfinished Work to another Contractor, or by a combination of such methods. In any event, the cost of completing the Work shall be charged against the Contractor and its Surety and may be deducted from any money due or becoming due from the City. If the amounts due under the Contract are insufficient for completion, the Contractor or Surety shall pay to the City within 30 days after the City submits an invoice for all costs in excess of the remaining Contract Price.

The provisions of this subsection shall be in addition to all other rights and remedies available to the City under law.

**6-5 TERMINATION OF THE CONTRACT.** DELETE in its entirety and SUBSTITUTE the following:

The City may terminate the Contract if it becomes impossible or impracticable to proceed, because of conditions or events beyond the control of the City.

Notices under this section shall be in accordance with 2-1.1.3, "Special Notices."

Upon receipt of written notice of termination the Contractor shall immediately cease all work, except work the Contractor is directed to complete or required to complete for public safety and convenience. The Contractor shall immediately notify Subcontractors and suppliers to immediately cease their work. In case of Termination for Convenience, the Contractor shall be paid (without duplication);

- a) for completed and acceptable work executed in accordance with the Contract prior to the effective date of termination;
- b) for all claims, costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, suppliers and others; and
- c) for reasonable expenses directly attributable to termination.

After termination, the Contractor shall submit a final termination settlement proposal to City in the form and with the certification prescribed by the City. The Contractor shall submit the proposal no later than 6 months from the effective date of termination, unless extended, in writing, by the City upon written request of the Contractor within the 6 month period.

If the Contractor fails to submit the proposal within 6 months, the City may determine the fair and reasonable amount, if any, due the Contractor as a result of the termination. The City will pay the Contractor the amount determined. If the Contractor disagrees with the amount determined by the City as fair and reasonable, the Contractor shall provide notice to the City within 30 days of receipt of payment. Any amount due shall be as later determined by arbitration, if the City and the Contractor agree thereto, or as fixed in a court of law.

All settlements related to termination of the contract in accordance with this section will be subject to the approval of the Mayor or designee and may also require City Council approval before ultimately becoming final.

**ADD: 6-5.1 Termination of the Contractor's Performance of Work.** The City may terminate, subject to the express terms and conditions set forth below, the Contractor's performance of Work under this contract, in whole or, from time to time, in part, if the City Council does not appropriate sufficient monies to fund the Contract. The Engineer will terminate, on behalf of the City, by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.

**ADD: 6-5.2 Notice of Termination.** Notice of Termination is from City to the Contractor terminating the Contract in accordance with 6-5, "TERMINATION OF CONTRACT."

After receipt of the Notice of Termination, and except as otherwise directed by the Engineer, the Contractor shall immediately proceed as follows:

- a) Stop Work immediately or in accordance with the Notice of Termination.
- b) Immediately place no further subcontracts for materials, services, or facilities, except as necessary to complete any authorized continued portion of the Contract.
- c) Immediately terminate all subcontracts to the extent that they relate to the Work terminated;
- d) With approval by the Engineer, settle all outstanding obligations arising from the termination of subcontracts; the approval of which will be final for purposes of this section.
- e) As directed by the Engineer, transfer the title and deliver to the City, completed or partially completed drawings, plans, calculations, specifications and any other documents and records that, if the Contract had been completed, would be required to be furnished to the City.
- f) Complete performance of the Work not terminated.
- g) Take all necessary steps and actions to minimize all costs to the City as a result of the termination.
- h) Take any action that may be necessary, or that the Engineer may direct, for the protection and preservation of the property related to this contract that is in the possession of the Contractor and in which the City has or may acquire an interest.



**ADD: 6-5.3 Removal of the City Property.** The Contractor may request the City to remove the City's property or enter into an agreement for its storage. Within 60 days, the City will accept title of property and remove it or enter into a storage agreement.

**ADD: 6-5.4 Termination Settlement.** After termination, the Contractor shall submit a final termination settlement proposal to the Engineer in the form and with the certification prescribed by the Engineer. The Contractor shall submit the proposal promptly, but no later than 6 months from the effective date of termination, unless extended, in writing, by the Engineer upon written request of the Contractor within this 6 month period. If the Engineer determines that the facts justify it, a termination settlement proposal may be received and acted on after 6 months or any extension. If the Contractor fails to submit the proposal within the time allowed, the City may, in good faith, determine, on the basis of information available, the fair and reasonable amount, if any, due the Contractor as a result of the termination and pay the amount determined. If the Contractor does not agree that the amount determined by the Engineer is fair and reasonable and if the Contractor gives notice of such disagreement to the City in accordance with this subsection, within 30 days of receipt of payment, then the amount due shall be as later determined by arbitration, if the City and the Contractor agree thereto, or as fixed in a court of law.

**ADD: 6-5.5 Payment to the Contractor Due to Termination.** Subject to 6-5.4, "Termination Settlement" the Contractor and the Engineer may agree upon the whole or any part of the amount to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. The agreed amount, whether in accordance with this subsection or 6-5.6, "Failure to Agree on Payment," exclusive of costs shown in 6-5.6, "Failure to Agree on Payment," subparagraph C, may not exceed the total dollar amount authorized by the City as reduced by (1) the amount of payments previously made; and (2) the Contract Price of work not terminated. The contract shall be amended, and the Contractor paid the agreed amount. Subsection 6-5.6, "Failure to Agree on Payment," shall not limit, restrict, or affect the amount that may be agreed upon to be paid in accordance with this subsection.

**ADD: 6-5.6 Failure to Agree on Payment.** If the Contractor and the City fail to agree on the whole amount to be paid because of the termination of Work, the City will pay the Contractor the fair and reasonable amounts determined in good faith by the City as follows, but without duplication of any amounts agreed on in accordance with 6-5.5, "Payment to Contractor Due to Termination" above:

- a) The Contract Price for completed services accepted by the City not previously paid for adjusted for any saving of freight and other charges.
- b) The total of:
  - i. The costs incurred in the performance of the Work terminated, including initial costs and preparatory expense allocable thereto, but excluding any costs attributable to services paid or to be paid in accordance with 6-5.6, "Failure to Agree on Payment";

- ii. The fair and reasonable cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the Contract if not included in subdivision “a”, above;
- iii. A sum, as provided in subdivision “a”, above, determined by the Engineer to be fair and reasonable under the circumstances; however, if it appears that the Contractor would have sustained a loss on the entire contract, had it been completed, the City will allow no profit and shall reduce the settlement to reflect the indicated rate of loss.
- iv. The reasonable costs of settlement of the Work terminated, including:
  - v. Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination of settlement proposals and supporting data;
  - vi. The termination and settlement of subcontracts (excluding the amounts of such settlements); and
  - vii. Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of property in which the City has or may acquire an interest.

**ADD: 6-5.7 Payment for Property Destroyed, Lost, Stolen, or Damaged.** Except to the extent that the City expressly assumed the risk of loss, the Engineer shall exclude from the amounts payable to the Contractor in accordance with 6-5.1.6, “Failure to Agree on Payment”, the fair value, as determined by the Engineer, or property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the City.

**ADD: 6-5.8 Determination of Amount Due the Contractor.** In arriving at the amount due the Contractor in accordance with this section, there shall be deducted:

- a) all un-liquidated advance or other payments to the Contractor under the terminated portion of this contract;
- b) any claim which the City has against the Contractor under this contract; and
- c) the agreed price for or the proceeds of sale of materials, supplies, or other things acquired by the Contractor or sold under the provisions of this section and not recovered by or credited to the City.

**ADD: 6-5.9 Partial Termination.** If the termination is partial, the Contractor may file a proposal with the Engineer for an equitable adjustment of the price(s) of the continued portion of the Contract. The City will make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this section shall be requested within 90 days from the effective date of termination, unless extended, in writing, by the Engineer.

**ADD: 6-5.10 Partial Termination Payments.** The City may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor

for the terminated portion of the Contract if the Engineer believes the total of these payments will not exceed the amount to which the Contractor will be entitled.

If the total payments exceed amounts finally determined to be due, the Contractor shall repay the excess to the City upon demand, together with interest. Interest shall be at a rate of 6% per annum compounded daily and shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or disposition, or a later date determined by the Engineer because of the circumstances.

**ADD: 6-5.11 Records and Documents Relating to Termination.** Unless otherwise provided in the Contract or by statute, the Contractor shall maintain all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other evidence bearing on the Contractor's costs, expenses, and settlement under this contract. The Contractor shall make these records and documents available to the City, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Engineer, photographs, microphotographs, and other authentic reproductions may be maintained instead of original records and documents.

**ADD: 6-5.12 Rights of the City Preserved.** Where the Contract has been terminated by the City in accordance with 6-5, "Termination of Contract" the termination will not affect any rights or remedies of the City against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies paid to the Contractor by the City shall not release the Contractor from liability.

### **6-6 DELAYS AND EXTENSIONS OF TIME.**

#### **6-6.1 General.** ADD the following:

Whenever the Contractor foresees any delay in the prosecution of the Work, and in any event immediately upon the occurrence of any delay which the Contractor regards as unavoidable, the Contractor shall notify the Engineer, in writing, of the probability of the occurrence of such delay and its cause.

It will be assumed that any and all delays which have occurred in the prosecution and completion of the work have been avoidable delays, except such delays as shall have been called to the attention of the Engineer at the time of their occurrence and found by him to have been unavoidable.

The Contractor shall make no claims that any delay not called to the attention of the Engineer at the time of its occurrence has been an unavoidable delay.

**ADD: 6-6.1.1 Damages Caused By Act Of God.** As provided in §7105 of the California Public Contract Code, if this contract is not financed by revenue bonds, the Contractor shall not be responsible for the cost of repairing or restoring damage to the Project when damage was proximately caused by an Act of God, in excess of 5% of the Contract Price if:

- a) the Project damaged was built in accordance with the Contract requirements, and

b) there are no insurance requirements in the Contract for the damages.

**ADD: 6-6.3.1 City Right to Stop Work.** The City, may, at any time and without cause, suspend the Project or any portion thereof for a period of not more than 90 days by written notice to the Contractor. The Contractor shall resume the Project on receipt from the City of a notice of resumption of Work.

The City reserves the right to shut down any trenching operation if the Contractor is not proceeding within a reasonable period of time to restore the pavement and clean up after himself. A reasonable period of time is considered to be 5 to 10 Working Days after backfilling any one block (600'+) of sewer main, storm drain, or any one section of water main to be tested. The period of time allowed will be determined by the Engineer and is not subject to dispute by the Contractor.

**ADD: 6-6.5 Contract Time Extension and Schedule Analysis.** A claim for extension in Contract Time will not be granted unless the Contractor can demonstrate through a Critical Path Method (CPM) analysis of the Schedule's critical path(s) that the increases in the time to perform or complete the Work, or specified part of the Work, beyond the corresponding Contract Time(s) arise from unforeseeable causes beyond the control and without the fault or negligence of the Contractor, and that such causes in fact lead to performance or completion of the Work, or specified part in question, beyond the corresponding Contract Time, despite the Contractor's reasonable and diligent actions to guard against those effects.

Fragnet is a group of schedule network activities representing a delay or change event. The Schedule analysis shall use delay fragnets to show the impact of the Work that is the basis of the Claim on specific impacted critical path Schedule activities.

Where the Contractor is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay to a "critical path" activity beyond the control of both the City and the Contractor, an extension of the Contract Times (or Milestones) in an amount equal to the time lost on the critical path of the Project due to such delay shall be the Contractor's sole and exclusive remedy for such delay.

The City may elect, at its sole discretion, to grant an extension in Contract Time, without the Contractor's request, because of delays or other factors.

**ADD: 6-6.6 The City Not Liable.** In no event shall the City be liable to the Contractor or other parties for damages arising out of or resulting from (i) delays caused by or within the control of the Contractor, or (ii) delays beyond the control of both parties e.g., fires, floods, epidemics, abnormal weather conditions, acts of God, war, or terrorist attack, closure of the City facilities mandated by State or Federal agencies, or acts or neglect by utility owners or other contractors performing other work as contemplated by Section 7, "RESPONSIBILITIES OF THE CONTRACTOR.

**ADD: 6-6.7 Event of Force Majeure (Event).** Any party to this contract may be excused for any delay or failure to perform its duties and obligations except for obligations to pay money, caused by and to the extent that such failure or delay is caused by an Event.

If an Event causes a delay or failure in performance of only a portion of the obligations of a Party, then only that portion of performance which was delayed or prevented by such cause shall be deemed excused. Performance of all other obligations of a Party shall not be excused by an Event. Any delay or failure to perform shall only excuse the Party for a period no longer than the delay or failure in performance caused by such Event. The Contractor shall not be entitled to damages or additional payment for any delay caused by an Event.

### **6-7 TIME OF COMPLETION.**

#### **6-7.1 General.** ADD the following:

The following shall be included in the stipulated Contract Time:

- a) 30 Working Days for the City Force high-line work for water mains (if applicable),
- b) 30 Working Days for the City Forces TV inspection of sewer mains (if applicable), and
- c) any number of Working Days required for walk through and preparation and completion of Punchlist items specified in 6-1, "Construction Schedule and Commencement of the Work."

If the Contract Documents require the Contractor to prepare engineered Traffic Control Plans (TCP) on "D-sheets," prior to the issuance of the NTP, the Contractor is entitled to an additional 60 Working Days to prepare and obtain approval of the TCP. These 60 Working Days include time for preparation of the TCP and the City's review. If the Contractor chooses to exercise this right, the Contractor shall inform the Engineer at the Pre-Construction meeting. In no event shall the NTP be issued more than 60 Working Days from the Pre-Construction meeting.

The Contractor may choose at any time after the Pre-Construction meeting to obtain a TCP Permit via Working Drawings or the City's over the counter process and start Work in other areas that do not require engineered TCP on "D-sheets." In this case, the Contractor shall forfeit the 60 Working Days to prepare the engineered TCP on "D-sheets" and the NTP will be issued. The D-sheet drawings shall be done concurrently and no additional time will be granted.

#### **6-7.3 Contract Time Accounting.** After the Second sentence ADD the following:

The Engineer's periodic report for Contract Time accounting will be issued at least once a month.

### **6-8 COMPLETION, ACCEPTANCE, AND WARRANTY.** DELETE second paragraph in their entirety and SUBSTITUTE the following:

The Contractor's obligation to perform and complete the Work in accordance with the Contract shall be absolute. Neither any payment by the City to the Contractor, nor any use or occupancy of the Work or any part thereof by the City, nor any review of a Shop Drawings and Working Drawing or sample submittal, will constitute an acceptance of Work or any portion of it.

If the Engineer finds materials, equipment, or workmanship which does not meet the terms of the Contract, the Engineer will prepare a Punchlist and submit it to the Contractor. If, in the Engineer's judgment, the Work has been completed, the Engineer will file a NOC with the County Recorder.

**ADD: 6-8.1 Defective Work.** If the Work, or any part thereof, is found to be defective, whether or not manufactured, fabricated, installed, completed or overlooked and accepted by the City, the Contractor shall, promptly and in accordance with the written instructions of the City e.g., a "punchlist" and within the reasonable time limits stated therein, either correct such defective Work, or, if it has been rejected by the City, remove it from the Site and replace it with non-defective and conforming Work.

If, upon notice, the Contractor fails to immediately correct the Defective Work, or the Contractor fails to correct the Defective Work in a manner conforming to the Contract Documents, the City may order the Contractor to stop all or part of the Project; however, the City's right to stop the Project shall not give rise to any duty on the part of the City to stop Work for the benefit of the Contractor or any other party. The Contractor shall bear all direct and indirect costs and damages that result from the City's stop work notice.

The City may determine in its sole discretion to accept Defective Work in lieu of requiring the Contractor to correct or remove and replace the Defective Work. However, the Contractor shall bear all direct and indirect costs of the Defective Work, and the diminished value to the Project, as determined by the City evaluation. If the City's acceptance of Defective Work occurs prior to Final Payment, the City will issue a Change Order incorporating the necessary revisions in the Contract Documents with respect to the Defective Work and affording the City the appropriate decrease in the Contract Price.

If the Contractor fails to correct, remove, or replace Defective Work within 5 Working Days from the date of written notice from the City, the City may proceed expeditiously with any correction of Defective Work undertaken in accordance with this section. The City may remedy at a sooner time in the event of an emergency. The City may remedy after 5 Working Days from the date of written notice when the Contractor fails to correct the Defective Work in accordance with the Contract Documents, or when the Contractor fails to comply with any other provision of the Contract Documents.

When undertaking remedial action under this section, 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 Work and or Services related thereto; and incorporate into the Project all materials and equipment stored at the Site or for which the City has paid but the Contractor has stored elsewhere.

The Contractor shall pay for any claims, costs, losses, and damages incurred by the City in remedying any deficiency e.g., all costs of repair or replacement of Defective Work and all costs of repair of any other Work on the Project destroyed or damaged by correction, removal, or replacement of the Contractor's Defective Work.

The Contractor shall not be allowed an extension of the Contract Time or Milestones because of any delay in the performance of the Project attributable to the City's undertaking remedial action to correct Defective Work.

For Building Projects which require a certificate of occupancy, not including sewer and water facilities, if the Contractor fails to correct the defective work listed on the City's "punchlist" within 45 days after the Contract duration, the Contractor shall be responsible for reimbursing the City for all costs to provide inspection services required to monitor Work beyond the forty 45 days. The Contractor shall be billed for this at the Contract Liquidated Damages rate.

**ADD: 6-8.2 Warranties.** As a precedent to final inspection, required by the Contract Documents, the Contractor shall deliver to the City all the manufacturers' warranties required by the Contract Documents, with the City named as beneficiary. For all equipment and machinery bearing a manufacturer's warranty that extends for a longer period of time than the Contractor's warranty, the Contractor shall secure and deliver the warranties to the City in the same manner.

The Contractor's warranty shall be in addition to the manufacturers' and suppliers' standard warranties, special warranties, or special warranties of longer durations required in accordance with Part 2, "CONSTRUCTION MATERIALS."

If the Contractor completes the Project or portions thereof prior to the time the NOC are issued, the Contractor shall preserve equipment by developing and implementing a preventive maintenance program in compliance with manufacturer's recommendations.

### **6-8.2.1 Format Requirements.**

- a) Written warranties, except manufacturer's standard printed warranties, shall be on the Contractor's and its agents', material suppliers', installers', or manufacturers' own letterhead, addressed to and for the benefit of the City. Warranties shall be submitted in the format described in this section, modified as approved by City to suit the conditions pertaining to the warranty.
- b) The Contractor shall obtain warranties, executed in triplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of Work. Except for items put into use with City's permission with date mutually agreed upon in writing, The Contractor shall ensure the beginning time of warranty is the Project Completion date.
- c) The Contractor shall verify that documents are in proper form, contain full information, and are notarized.
- d) The Contractor shall verify that warranties are signed by both The Contractor and the appropriate agent.
- e) The Contractor shall retain warranties until the time specified for submittal to City.



- f) The warranties shall be provided to City with a neatly typed Table of Contents, identifying each warranty with the number and title of the applicable specification section requiring the warranty and the name of the product or Work item.
- g) Each warranty shall be separated with index tab sheets keyed to the Table of Contents listing. Complete information shall be provided, using separate typed sheets as necessary. The information shall include a list of Subcontractors, supplier, and manufacturer, with name, address and telephone number of responsible principal.

**ADD: 6-8.3 Requirements Preparatory To Requesting a Walk-through.** Walk-through is the procedure used by the City to generate a Punchlist prior to Acceptance.

The following items shall be required prior to requesting a walk-through:

- a) Remove temporary facilities from the Site.
- b) Thoroughly clean the Site.
- c) Provide completed and signed Red-lines in accordance with 2-5.4, "Red-lines Drawings."
- d) Provide all material and equipment maintenance and operation instructions and/or manuals.
- e) Provide all warranties and guarantees required by the Contract Documents.
- f) Provide all tools which are a permanent part of equipment installed in the Project.
- g) Provide and properly identify all keys, construction and permanent.
- h) Provide all final Special Inspection reports required by the Uniform Building Code.
- i) Provide all certificates for materials, back-flows, glulam beams, underground storage tanks, etc.
- j) Provide all items that this contract requires to be supplied as extra stock. All items shall be wrapped, sealed, or placed in a container as necessary to allow for storage by the City for future use. The amount specified in this contract shall be verified by the City and the Contractor.
- k) Ensure all EOCP documents and certified wage rate documents (if applicable) have been submitted from the beginning of the job to complete close-out.

**ADD: 6-8.4 Walk-through and Punchlist Procedure.** The following procedure outlines the steps to be taken upon the Contractor's assertion that the Project is complete:

- a) When the Contractor considers that the Work and Services are complete, the Contractor shall in writing notify the City that the Project is complete and request that the City perform a walk-through for generation of a Punchlist. The Contractor shall notify the City at least 7 days in advance of the time the walk-through is to be performed.

- b) The City will determine if the Contractor is ready for a walk-through by verifying whether the Contractor has provided or completed all items as required by 6-8.1, "Defective Work," whether the Contractor has obtained the applicable certifications, and by evaluating completeness by inspecting the Project and the specified Work required by the Contract Documents.
- c) If the Work includes underground sewer conduit installations, the inspection will include televising in accordance with 306-1.4.8, "Televising Sewer Mains and Storm Drains."
- d) The City will facilitate a walk-through.
- e) The Contractor shall make available at the Site for walk-through attendees the plans and specifications and the technical data such as submittals and equipment manuals.
- f) The City will generate the Punchlist within 15 Working Days from the date of the walk-through and submit it to the Contractor. The City will not provide a preliminary Punchlist.
- g) If the City begins to generate a Punchlist and finds the Project is not substantially complete as defined herein, the City will terminate the walk-through and notify the Contractor in writing.
- h) If, at any time during the City's evaluation of the corrective Work required by the Punchlist, the City discovers that additional corrective Work is required, the City may include that corrective Work in the Punchlist. The Contractor shall be solely responsible for the Site until the Project is completely operational, all Punchlist items have been corrected, and all operation and maintenance manuals have been accepted by the City.
- i) The City will meet with the Contractor until all Punchlist items are corrected. If the Contractor takes longer than 30 Working Days to complete the corrective Work, the Project shall be subject to re-evaluation.
- j) During the 35 day stop notice/lien period which commences on the date the NOC is recorded, the Contractor shall submit to the City the retention billing. After the City receives the retention billing, the City will mail to the Contractor a "Release of Claims" form, which shall be completed by the Contractor and returned to the City before the retention will be released.
- k) Upon Final Completion, the Contractor shall assemble and deliver to the City all records, documents, warranties, bonds, guarantees, maintenance and service agreements, and maintenance and operating manuals. Written warranties, except manufacturer's standard printed warranties, shall be on the Contractor's and the Contractor's agents, material suppliers, installers, or manufacturer's letterhead, addressed to the Contractor. Warranties shall be submitted in the format described in this section, modified as approved by the City to suit the conditions pertaining to the warranty.

**ADD: 6-8.5 Correction of Work During Warranty.** If within one year (or a longer applicable warranty period) after the date for commencement of warranties under the Contract Documents, any item of the Work is found to be Defective Work, the Contractor shall correct it promptly after receipt of written notice from the City to do so unless the City has previously given the Contractor a specific written acceptance of such condition after the City has been specifically informed in writing by the Contractor that the condition is not in accordance with the Contract Documents. This period of one year (or a longer applicable warranty period) shall be extended with respect to portions of the Work corrected as part of the warranty requirements.

**6-9 LIQUIDATED DAMAGES.** MODIFY to increase the daily value from \$250 to \$500 for contracts with a value of over \$100,000.

**6-10 USE OF IMPROVEMENT DURING CONSTRUCTION.** ADD the following:

For equipment or parts of Work possessed and partially utilized by the City, the warranty period shall commence on the date agreed to by the City in writing.

**ADD: 6-11 RIGHT TO AUDIT.**

**6-11.1 The City's Right.** The City retains the right to review and audit, and the reasonable right of access to the Contractor's and all Subcontractor's premises to review and audit the Contractor's compliance with the provisions of this contract (City's Right). The City's Right includes the right to inspect and photocopy same, and to retain copies, outside of the Contractor's premises, of any and all records with appropriate safeguards, if such retention is deemed necessary by the City in its sole discretion. This information shall be kept by the City in strictest confidence.

**6-11.2 Audit.** The City's Right includes the right to examine any and all books, records, documents and any other evidence of procedures and practices that the City determines is necessary to discover and verify that the Contractor is in compliance with all requirements under this contract.

**6-11.2.1 Cost Audit.** If there is a claim for additional compensation or for changes in Work, the City's Right to Audit includes the right to examine books, records, documents, and any and all other evidence and accounting procedures and practices that the City determines is necessary to discover and verify all direct and indirect costs, of whatever nature, which are claimed to have been incurred, anticipated to be incurred, or for which a claim for additional compensation or for changes in the Work have been submitted.

**6-11.2.1.1 Accounting Records.** The Contractor shall maintain complete and accurate records in accordance with generally accepted accounting practices in the construction industry. The Contractor shall make available to the City for review and audit all Project related accounting records and documents, and any other financial data. Upon the City's request, the Contractor shall submit exact duplicates of originals of all requested records to the City.

**6-11.3 The City's Right -Binding on Subcontractors.** The Contractor shall include the City's Right in accordance with 6-11, "RIGHT TO AUDIT" in any and all of their subcontracts, and shall ensure that 6-11, "RIGHT TO AUDIT" is binding upon all Subcontractors.

**6-11.4 Compliance Required Before Mediation and Litigation.** A condition precedent to proceeding with mandatory mediation and further litigation provided for in 3-6, "DISPUTE RESOLUTION PROCESS" is the Contractor's full compliance with 6-11, "RIGHT TO AUDIT" within 60 days of the date on which the City mails a written request to review and audit compliance.

**6-11.5 Access to Records on Federally Funded Projects.** The Contractor shall retain all records, books, papers, and documents directly pertinent to the Contract for a period of not less than 5 years after grantees or subgrantees make Final Payments and all other pending matters are closed; and allow access to said records by the grantee, subgrantee, the Federal Grantor Agency, the Comptroller General of the United States, or any duly authorized representatives.

## SECTION 7 – RESPONSIBILITIES OF THE CONTRACTOR

**7-2.2 Laws.** ADD the following sentence to the last paragraph:

For contracts subject to payment of prevailing wages, the Contractor shall submit certified payrolls weekly to the City reflecting the wages of all the Contractor and Subcontractor employees engaged in the Work.

**7-3 LIABILITY INSURANCE.** DELETE in its entirety and SUBSTITUTE the following:

The insurance provisions herein shall not be construed to limit the Contractor's indemnity obligations contained in this contract.

**ADD: 7-3.1 Policies and Procedures.** The Contractor shall procure the insurance described below, at its sole cost and expense, to provide coverage against claims for loss including injuries to persons or damage to property, which may arise out of or in connection with the performance of the Work by the Contractor, the Contractor's agents, representatives, officers, employees or subcontractors. The Contractor shall maintain this insurance for the duration of this contract and at all times thereafter when the Contractor is correcting, removing, or replacing Work in accordance with this contract. The Contractor's liabilities under this contract, e.g., the Contractor's indemnity obligations, shall not be deemed limited to the insurance coverage required by this contract.

Payment for insurance shall be included in the various items of Work as bid by the Contractor, and except as specifically agreed to by the City in writing, the Contractor shall not be entitled to any additional payment. The Contractor shall not begin any work under this contract until it has provided and the City has approved all required insurance. Policies of insurance shall provide that the City is entitled to 30 days (ten days for cancellation due to non-payment of premium) prior written notice of cancellation or non-renewal of the policy. Maintenance of specified insurance coverage is a material element of this contract and the

Contractor’s failure to maintain or renew coverage or to provide evidence of renewal during the term of this contract may be treated by the City as a material breach of contract.

**ADD: 7-3.2 Types of Insurance.**

**7-3.2.1 Commercial General Liability Insurance.** Commercial General Liability Insurance written on the current version of the ISO Occurrence form CG 00 01 07 98 or an equivalent form providing coverage at least as broad. The policy shall cover liability arising from premises and operations, XCU (explosions, underground, and collapse), independent contractors, products/completed operations, personal injury and advertising injury, bodily injury, property damage, and liability assumed under an insured’s contract (including the tort liability of another assumed in a business contract). There shall be no endorsement or modification limiting the scope of coverage for either “insured vs. insured” claims or contractual liability. The Contractor shall maintain the same or equivalent insurance for at least 10 years following completion of the Work. All costs of defense shall be outside the policy limits. Policy coverage shall be in liability limits of not less than the following:

General Annual Aggregate Limit	Limits of Liability
(Other than Products/Completed Operations)	\$2,000,000
Products/Completed Operations Aggregate Limit	\$2,000,000
Personal Injury Limit	\$1,000,000
Each Occurrence	\$1,000,000

**7-3.2.2 Commercial Automobile Liability Insurance.** The Contractor shall provide at its expense a policy or policies of Commercial Automobile Liability Insurance written on the current version of the ISO form CA 00 01 12 90 or later version or equivalent form providing coverage providing coverage at least as broad in the amount of \$1,000,000 combined single limit per accident, covering bodily injury and property damage for owned, non-owned and hired automobiles (“Any Auto”). All costs of defense shall be outside the limits of the policy.

**7-3.2.3 Commercial Pollution Liability Insurance.** The Contractor shall procure and maintain at its expense require its subcontractor, as described below to procure and maintain, the Contractors Pollution Liability Insurance including contractual liability coverage to cover liability arising out of cleanup, removal, storage, or handling of hazardous or toxic chemicals, materials, substances, or any other pollutants by the Contractor or any Subcontractor in an amount not less than \$2,000,000 limit for bodily injury and property damage. All costs of defense shall be outside the limits of the policy. Any such insurance provided by a subcontractor instead of the Contractor shall be approved separately in writing by the City. Approval of a substitution of a subcontractor’s insurance shall require a certification by the Contractor that all activities for which the Contractors Pollution Liability Insurance will provide coverage will be performed exclusively by the Subcontractor providing the insurance. The deductible shall not exceed \$25,000 per claim.

Contractual liability shall include coverage of tort liability of another party to pay for bodily injury or property damage to a third person or organization. There shall be no endorsement or modification of the coverage limiting the scope of coverage for either “insured vs. insured” claims or contractual liability. Occurrence based policies shall be procured before

the Work commences and shall be maintained for the duration of this contract. Claims Made policies shall be procured before the Work commences, shall be maintained for the duration of this contract, and shall include a 12 month extended Claims Discovery Period applicable to this contract or the existing policy or policies shall continue to be maintained for 12 months after the completion of the Work under the Contract without advancing the retroactive date. Except as provided for under California law, the policy or policies shall provide that the City is entitled to 30 days prior written notice (10 days for cancellation due to non-payment of premium) of cancellation or non-renewal of the policy or policies.

**7-3.2.4 Contractors Hazardous Transporters Pollution Liability Insurance.** The Contractor shall provide at its expense or require its subcontractor to provide, as described below Contractors Hazardous Transporters Pollution Liability Insurance including contractual liability coverage to cover liability arising out of transportation of hazardous or toxic, materials, substances, or any other pollutants by the Contractor or any subcontractor in an amount not less than \$2,000,000 limit per occurrence/aggregate for bodily injury and property damage. All costs of defense shall be outside the limits of the policy. The deductible shall not exceed \$25,000 per claim. Any such insurance provided by a subcontractor instead of the Contractor shall be approved separately in writing by the City. Approval of the substitution of a subcontractor's insurance shall require a certification by the Contractor that all activities for which Contractors Hazardous Transporters Pollution Liability Insurance will provide coverage will be performed exclusively by the Subcontractor providing the insurance.

Contractual liability shall include coverage of tort liability of another party to pay for bodily injury or property damage to a third person or organization. There shall be no endorsement or modification of the coverage limiting the scope of coverage for either "insured vs. insured" claims or contractual liability. Occurrence based policies shall be procured before the Work commences and shall be maintained for the duration of this contract. Claims Made policies shall be procured before the Work commences, shall be maintained for the duration of this contract, and shall include a 12 month extended Claims Discovery Period applicable to this contract or the existing policy or policies shall continue to be maintained for 12 months after the completion of the Work under this contract without advancing the retroactive date. Except as provided for under California law, the policy or policies shall provide that the City is entitled to 30 days prior written notice (10 days for cancellation due to non-payment of premium) of cancellation or non-renewal of the policy or policies.

**7-3.2.5 Contractors Builders Risk Property Insurance.** The Contractor shall provide at its expense, and maintain until Final Completion and Acceptance of the Work, a Special Form Builders Risk Policy or Policies. This insurance shall be in an amount equal to the replacement cost of the completed Work (without deduction for depreciation) including the cost of excavations, grading, and filling. The policy or policies limits shall be 100% of this contract value of the Work plus 15% to cover administrative costs, design costs, and the costs of inspections and construction management.

Insured property shall include material or portions of the Work located away from the Site but intended for use at the Site, and shall cover material or portions of the Work in transit.

The policy or policies shall include as insured property scaffolding, falsework, and temporary buildings located at the Site. The policy or policies shall cover the cost of removing debris, including demolition.

The policy or policies shall provide that all proceeds thereunder shall be payable to the City as Trustee for the insureds, and shall name the City, the Contractor, Subcontractors, and suppliers of all tiers as named insureds. The City as Trustee shall collect, adjust, and receive all monies which may become due and payable under the policy or policies, may compromise any and all claims thereunder, and shall apply the proceeds of such insurance to the repair, reconstruction, or replacement of the Work.

Any deductible applicable to the insurance shall be identified in the policy or policies documents and responsibility for paying the part of any loss not covered because of the application of such deductibles shall be apportioned among the parties except for the City as follows: if there is more than one claimant for a single occurrence, then each claimant shall pay a pro-rata share of the per occurrence deductible based upon the percentage of their paid claim to the total paid for all insureds. The City shall be entitled to 100% of its loss. Any portion of that loss not covered because of a deductible shall be paid to the City by the Contractor at the same time the proceeds of the insurance are paid to the City as trustee.

Any insured, other than the City, making claim to which a deductible applies shall be responsible for 100% of the loss not insured because of the deductible. Except as provided for under California law, the policy or policies shall provide that the City is entitled to 30 days prior written notice (10 days for cancellation due to non-payment of premium) of cancellation or non-renewal of the policy or policies.

**7-3.2.6 Railroad Protective Liability Insurance.** Exclusions relating to performance of operations within the vicinity of any railroad, bridge, trestle, roadbed, tunnel, underpass, or cross shall be deleted from all policies to which they may apply. Alternatively, the Contractor may provide separate Railroad Protective Liability insurance providing coverage, including endorsements, equivalent to that required for the CGL described herein.

**ADD: 7-3.3 Rating Requirements.** Except for the State Compensation Insurance Fund, all insurance required by this contract as described herein shall be carried only by responsible insurance companies with a rating of, or equivalent to, at least "A-, VI" by A.M. Best Company, that are authorized by the California Insurance Commissioner to do business in the State, and that have been approved by the City.

**7-3.3.1 Non-Admitted Carriers.** The City will accept insurance provided by non-admitted, "surplus lines" carriers only if the carrier is authorized to do business in the State and is included on the List of Eligible Surplus Lines Insurers (LESLI list).

All policies of insurance carried by non-admitted carriers shall be subject to all of the requirements for policies of insurance provided by admitted carriers described herein.

**ADD: 7-3.4 Evidence of Insurance.** The Contractor shall furnish to the City documents e.g., certificates of insurance and endorsements evidencing the insurance required herein, and shall furnish renewal documentation prior to expiration of this insurance. Each required



document shall be signed by the insurer or a person authorized by the insurer to bind coverage on its behalf. The City reserves the right to require complete, certified copies of all insurance policies required herein.

### **ADD: 7-3.5 Policy Endorsements.**

#### **7-3.5.1 Commercial General Liability Insurance**

**7-3.5.1.1 Additional Insured.** To the fullest extent allowed by law e.g., California Insurance Code §11580.04, the policy shall be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insureds. The additional insured coverage for Projects for which the Engineer's Estimate is \$1,000,000 or more shall include liability arising out of: (a) Ongoing operations performed by the Contractor or on the Contractor's behalf, (b) Your products, (c) Your work, e.g., the Contractor's completed operations performed by the Contractor or on the Contractor's behalf, or (d) premises owned, leased, controlled, or used by the Contractor; the coverage for Projects for which the Engineer's Estimate is less than \$1,000,000 shall include liability arising out of: (a) Ongoing operations performed by the Contractor or on the Contractor's behalf, (b) Your products, or (c) premises owned, leased, controlled, or used by the Contractor.

**7-3.5.1.2 Primary and Non-Contributory Coverage.** The policy shall be endorsed to provide that the coverage with respect to operations, including the completed operations, if appropriate, of the Named Insured is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives. Further, it shall provide that any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of the Contractor's insurance and shall not contribute to it.

**7-3.5.1.3 Project General Aggregate Limit.** The policy or policies shall be endorsed to provide a Designated Construction Project General Aggregate Limit that will apply only to the Work. Only claims payments which arise from the Work shall reduce the Designated Construction Project General Aggregate Limit. The Designated Construction Project General Aggregate Limit shall be in addition to the aggregate limit provided for the products-completed operations hazard.

#### **7-3.5.2 Commercial Automobile Liability Insurance.**

**7-3.5.2.1 Additional Insured.** Unless the policy or policies of Commercial Auto Liability Insurance are written on an ISO form CA 00 01 12 90 or a later version of this form or equivalent form providing coverage at least as broad, the policy shall be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insureds, with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the Contractor. This endorsement is limited to the obligations permitted by California Insurance Code §11580.04.

#### **7-3.5.3 Contractors Pollution Liability Insurance Endorsements.**

**7-3.5.3.1 Additional Insured.** The policy or policies shall be endorsed to include as an Insured the City and its respective elected officials, officers, employees, agents, and representatives, with respect to liability arising out of: (a) Ongoing operations performed by the Contractor or on the Contractor's behalf, (b) the Contractor's products, (c) the Contractor's work, e.g., the Contractor's completed operations performed by the Contractor or on the Contractor's behalf, or (d) premises owned, leased, controlled, or used by the Contractor; Except that in connection with, collateral to, or affecting any construction contract to which the provisions of subdivision (b) of Section 2782 of the California Civil Code apply, this endorsement shall not provide any duty of indemnity coverage for the active negligence of the City and its respective elected officials, officers, employees, agents, and representatives in any case where an agreement to indemnify the City and its respective elected officials, officers, employees, agents, and representatives would be invalid under subdivision (b) of §2782 of the California Civil Code.

In any case where a claim or loss encompasses the negligence of the Insured and the active negligence of the City and its respective elected officials, officers, employees, agents, and representatives that is not covered because of California Insurance Code §11580.04, the insurer's obligation to the City and its respective elected officials, officers, employees, agents, and representatives shall be limited to obligations permitted by California Insurance Code §11580.04.

**7-3.5.3.2 Primary and Non-Contributory Coverage.** The policy or policies shall be endorsed to provide that the insurance afforded by the Contractors Pollution Liability Insurance policy or policies is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives with respect to operations including the completed operations of the Named Insured. Any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of the Contractor's insurance and shall not contribute to it.

**7-3.5.3.3 Severability of Interest.** For Contractors Pollution Liability Insurance, the policy or policies shall provide that 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 and shall provide cross-liability coverage

### **7-3.5.4 Contractors Hazardous Transporters Pollution Liability Insurance Endorsements.**

**7-3.5.4.1 Additional Insured.** The policy or policies shall be endorsed to include as an Insured the City and its respective elected officials, officers, employees, agents, and representatives, with respect to liability arising out of: (a) Ongoing operations performed by the Contractor or on the Contractor's behalf, (b) the Contractor's products, (c) the Contractor's work, e.g., the Contractor's completed operations performed by the Contractor or on the Contractor's behalf, or (d) premises owned, leased, controlled, or used by the Contractor; Except that in connection with, collateral to, or affecting any construction contract to which the provisions of subdivision (b) of §2782 of the California Civil Code apply, this endorsement shall not provide any duty of indemnity coverage for the active negligence of the City and its respective elected officials, officers, employees, agents, and

representatives in any case where an agreement to indemnify the City and its respective elected officials, officers, employees, agents, and representatives would be invalid under subdivision (b) of §2782 of the California Civil Code.

In any case where a claim or loss encompasses the negligence of the Insured and the active negligence of the City and its respective elected officials, officers, employees, agents, and representatives that is not covered because of California Insurance Code §11580.04, the insurer's obligation to the City and its respective elected officials, officers, employees, agents, and representatives shall be limited to obligations permitted by California Insurance Code §11580.04.

**7-3.5.4.2 Primary and Non-Contributory Coverage.** The policy or policies shall be endorsed to provide that the insurance afforded by the Contractors Pollution Liability Insurance policy or policies is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives with respect to operations including the completed operations of the Named Insured. Any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of the Contractor's insurance and shall not contribute to it.

**7-3.5.4.3 Severability of Interest.** For Contractors Hazardous Transporters Pollution Liability Insurance, the policy or policies shall provide that 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 and shall provide cross-liability coverage.

### **7-3.5.5 Builders Risk Endorsements.**

**7-3.5.5.1 Waiver of Subrogation.** The policy or policies shall be endorsed to provide that the insurer will waive all rights of subrogation against the City, and its respective elected officials, officers, employees, agents, and representatives for losses paid under the terms of the policy or policies and which arise from work performed by the Named Insured for the City.

**7-3.5.5.2 Builders Risk – Partial Utilization.** If the City desires to occupy or use a portion or portions of the Work prior to Final Completion in accordance with this contract, the City shall notify the Contractor and the Contractor shall immediately notify its Builder's Risk insurer and obtain an endorsement that the policy or policies shall not be cancelled or lapse on account of any such partial use or occupancy. The Contractor shall obtain the endorsement prior to the City's occupation and use.

**ADD: 7-3.6 Deductibles/Self-Insured Retentions.** The Contractor shall be responsible for the payment of all deductibles and self-insured retentions. Deductibles and self-insured retentions shall be disclosed to the City at the time the evidence of insurance is provided.

**ADD: 7-3.7 Reservation of Rights.** The City reserves the right, from time to time, to review Contractor's insurance coverage, limits, deductibles and self-insured retentions to determine if they are acceptable to the City. The City will reimburse Contractor, without overhead, profit, or any other markup, for the cost of additional premium for any coverage requested by the City but not required by this contract.

**ADD: 7-3.8 Notice of Changes to Insurance.** The Contractor shall notify the City 30 days prior to any material change to the policies of insurance provided under this contract.

**ADD: 7-3.9 Excess Insurance.** Policies providing excess coverage shall follow the form of the primary policy or policies e.g., all endorsements.

**ADD: 7-3.10 Architects and Engineers Professional Insurance (Errors and Omissions Insurance)** – For contracts with required engineering services (e.g., Design-Build, preparation of engineered Traffic Control Plans (TCP), etc. by the Contractor) for all of the Contractor’s employees or Subcontractors who provide professional engineering services under this contract, the Contractor shall keep or shall require its Subcontractor in full force and effect, Professional Liability coverage with a limit of \$1,000,000 per claim and \$2,000,000 annual aggregate.

The Contractor shall ensure both that: (a) the policy retroactive date is on or before the date of commencement of the Project; and (b) the policy will be maintained in force for a period of three years after completion of the Project or termination of this contract whichever occurs last. The Contractor agrees that for the time period defined above, there will be no changes or endorsements to the policy that affect the coverage provided herein

If professional engineering services are to be provided solely by a subcontractor, the Contractor shall (a) certify this to the City in writing and (b) agree in writing to require the Subcontractor to procure Professional Liability coverage in accordance with the requirements set forth above.

**7-4 WORKERS’ COMPENSATION INSURANCE.**

DELETE in its entirety and SUBSTITUTE the following:

**7-4.1 Workers’ Compensation Insurance and Employers Liability Insurance.** In accordance with the provisions of §3700 of the California Labor Code, the Contractor shall provide at its expense Workers’ Compensation Insurance and Employers Liability Insurance to protect the Contractor against all claims under applicable state workers compensation laws. The City, its elected officials, and employees will not be responsible for any claims in law or equity occasioned by the failure of the Contractor to comply with the requirements of this section. Limits for this insurance shall be not less than the following:

<u>Workers’ Compensation</u>	<u>Statutory Employers Liability</u>
Bodily Injury by Accident	\$1,000,000 each accident
Bodily Injury by Disease	\$1,000,000 each employee
Bodily Injury by Disease	\$1,000,000 policy limit

By signing and returning this contract the Contractor certifies that the Contractor is aware of the provisions of §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 the Contractor will comply with such provisions before commencing the performance of the work of this contract as required by Section 1861 of the California Labor Code.

**7-4.1.1 Workers' Compensation Insurance for Work In, Over, or Alongside Navigable Waters.** In addition to the Workers' Compensation Insurance required under the General Conditions of this contract, the Contractor shall provide additional insurance coverage for claims brought under the Longshore and Harbor Workers' Compensation Act, the Jones Act, general maritime law, and any other federal or state laws, resulting from the Contractor's work in, over, or alongside navigable waters.

**7-4.2.1 Waiver of Subrogation.** The policy or policies shall be endorsed to provide that the insurer will waive all rights of subrogation against the City, and its respective elected officials, officers, employees, agents, and representatives for losses paid under the terms of the policy or policies and which arise from work performed by the Named Insured for the City.

**ADD: 7-5.1 Building Permits.** The Contractor shall obtain the required building permits from the DSD. Any prior approval obtained for the Plans will not in any way waive this requirement.

The Contractor shall be required to request inspections in accordance with the building codes in effect on the permitted plans and by the DSD. These inspections will be coordinated at all times through the Engineer. Any work performed without the benefit of the required permit and subsequent inspection shall be removed and replaced at the discretion of the Inspector at no additional cost to the City.

The payment for applying for and obtaining the required permits shall be included in the various Bid items unless a Bid item has been provided.

**ADD: 7-5.2 Caltrans Permit.** When applicable and available, a copy of the draft Caltrans permit is included in Appendix "H". The City has applied for the permit and the Contractor shall be responsible for pulling the permit prior to construction and supplying any construction method information to do so to Caltrans. The Contractor shall be responsible for paying permit fees prior to construction, complying with all terms of the permit, and arranging and paying for inspection as required by Caltrans.

The Allowance Bid item for Caltrans Encroachment Permit includes all Caltrans permit fees, Caltrans hourly inspection costs, and all costs to obtain the subject permit. If Bid Item is not provided payment shall be included in the various items of Work.

**7-6 THE CONTRACTOR'S REPRESENTATIVE.** ADD the following:

The designated Contractor's representative shall not be replaced without written notice to the City. During periods when the Work is suspended, the Contractor shall make appropriate arrangements for any emergency work which may be required to be performed under the supervision of the Contractor's representative.

The Contractor shall provide the Engineer with a local phone number at which they or their representative may be contacted 24 hours a day.

**ADD: 7-6.1 Project Meetings.** The Contractor's field supervisor e.g., superintendent and Project Manager, shall attend all scheduled construction progress meetings and other

Project meetings as required by the Engineer. The City's design staff will attend Project meetings on an as-needed basis to address design issues. Construction progress meetings may be weekly, bi-weekly, or monthly as required by the Engineer. Other Project meetings will be scheduled at the sole discretion of the Engineer.

The Engineer will determine the date(s), time(s), and location(s) for all meetings. The Engineer will be responsible for the meeting agendas and meeting minutes. If any of the Contractor's staff cannot attend, the Contractor shall notify the Engineer a minimum of 24 hours in advance, prior to the start of the scheduled meeting. If the Contractor does not provide the required notification the Contractor shall be financially responsible for the costs of the City staff, consultants, or both that attend. The Contractor will be charged a minimum of two hours of the Engineer's time plus the time of other the City employees or representatives that attend the meeting. Lack of participation from the Contractor will be documented and reported in the Contractor's performance evaluation.

The objective of the meetings is to discuss: (1) the status of submittals, (2) requests for information, (3) progress of schedule, (4) disputed items, (5) non-conformance notices, and (6) new business of importance from any member of the meeting.

**7-6.1.1 Payment.** The payment for the Contractor's attendance of Project meetings shall be included in the various Bid items. All costs assessed to the Contractor for not attending the meetings will be deducted from the monthly invoice.

**ADD: 7-8.7 Graffiti Control.** The Contractor shall maintain all Site improvements, including any temporary facilities, equipment or other materials in a graffiti free condition throughout the construction period, until acceptance of the Project by the City. Graffiti encountered on the Site shall be removed by the Contractor within 24 hours.

The payment for graffiti removal shall be included in other items of Work.

**7-9 PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS.** ADD the following:

In the event that any the Contractor date stamp and Impressions are located on existing sidewalk, curb ramps, or curbs, which are scheduled to be removed, the disposition of the date stamp and Impressions shall be determined by the City prior to NTP in accordance with Section 303, "CONCRETE AND MASONRY CONSTRUCTION." In the event that the Contractor encounters any date stamp and Impressions not previously identified by the City, the Contractor shall notify the Engineer prior to removal.

**ADD: 7-9.1 Video Recording Of Pre-existing Conditions.** The Contractor shall make its own arrangements for video recording all pre-existing conditions of the Site prior to any construction.

Video recording of important aspects of a construction Site shall include, but is not limited to the following:

- a) Property lines.
- b) Right-of-way and easement conditions.
- c) Utility markings.

- d) Survey conditions.
- e) Pavement conditions.
- f) Adjacent property conditions.
- g) Sidewalk, median, curb, and gutter conditions.
- h) Safety conditions.
- i) Unusual conditions or equipment.
- j) Existing canyon conditions (including vegetation) along the pipe corridor;
- k) Striping

The Contractor shall turn over video discs to the City immediately after recording is done in the presence of the Engineer. Disc(s) shall be submitted no later than 30 days from NTP. The Contractor shall not be entitled to any additional Working Days due to delay securing videotaping services.

Unless proven otherwise via the pre-existing video records, the Contractor shall be responsible for the repair of any damage for which a Claim has been submitted.

**7-9.1.1 Payment.** Payment for video recording services shall be included in the Bid item for "Video Recording of Pre-existing Conditions." If there is no Bid item, payment shall be included in the various Bid items.

**ADD: 7-9.2 Placements and Removal of Markouts.** Markouts shall not be placed in the public right-of-way more than 30 days prior to the commencement of excavation work perform in connection with an installation.

Markouts shall be removed from all surfaces in the public right-of-way, including decorative surfaces, within 30 days of the completion of the excavation work, if the work is completed.

**ADD: 7-9.3 Existing Pavement Markers and Striping.** The Contractor shall record the location and conditions of the existing pavement markers and striping prior to construction and submit to the Engineer in accordance with 2-5.3, "Submittals." Permanent pavement markers and striping removed or damaged during construction shall be replaced in kind or as noted on the Drawings at the Contractor's expense.

**7-10.1 Traffic and Access.** Before the last paragraph, ADD the following:

The term "Railroad" shall mean the San Diego Metropolitan Transit System (MTS) and the San Diego Arizona & Eastern Railroad (SDA&E).

The Contractor's right to enter right-of-way owned, operated, occupied, and/or controlled by Railroad shall be subject to the absolute right of Railroad to cause the Contractor's work to cease if, in the opinion of Railroad, Contractor's activities create a hazard to Railroad's patrons, employees, and operations.

The Contractor shall obtain a Right of Entry Permit from Railroad prior to entering or constructing on property owned, operated, occupied, and/or controlled by the Railroad. The Contractor shall abide by the terms of the Right of Entry Permit. The terms of the Right of Entry Permit shall govern if there are any conflicts with the Plans and Specifications.



Information on obtaining a Right of Entry Permit and regarding MTS policies can be obtained at <http://www.sdmts.com/business/permits/asp> or by calling MTS Right of Way Services at 619-557-4501.

If Work is located within the flight path of aircrafts landing or taking off at San Diego airports, a construction permit shall be obtained for tall equipment (e.g., cranes) through Federal Aviation Administration (FAA).

Payment for railroad liability insurance, permits, plan review, inspection, flagging, and fees shall be included in the various Bid items.

### **ADD: 7-10.2 Traffic Control.**

**7-10.2.1 Traffic Control Working Drawings.** For those portions of the Work where traffic control Plans are not provided in the Contract Documents and the Special Provisions or the Plans do not require “D” size engineered traffic control plans (TCP), the Contractor shall prepare traffic control Working Drawings.

The Contractor shall prepare and submit traffic control Working Drawings, in accordance with the City’s Computer Aided Design and Drafting (CADD) standards, in accordance with 2-5.3, “Submittals” to the Engineering Traffic Control Section. The Contractor may use any standard engineering CADD program e.g., MicroStation and AutoCAD to prepare TCP. The Working Drawings shall be of a size and scale to clearly show all necessary details. The traffic control Working Drawing shall be site-specific. Typical plans and sections will not be accepted.

The Contractor shall allow a minimum of 20 Working Days for review of the Working Drawings. If extensive additions or corrections are required, the Engineering Traffic Control Section will return the marked-up print for corrections and re-submission. If no change or correction is required, the original Working Drawings will be retained by the Engineer. One copy, with the Traffic Control Plan (TCP) Permit attached, will be returned to the Contractor. No extension of time will be allowed as a result of the Contractor’s failure to properly produce traffic control Working Drawings and to schedule the Work.

**7-10.2.2 Engineered Traffic Control Plans Provided by the Contractor.** If the Contract Documents require “D” size i.e., engineered TCP, the Contractor shall submit the “D” sheet TCP’s in accordance with 2-5.3. The engineered TCP shall be prepared by a Professional Engineer (i.e., Traffic or Civil) registered in the State of California.

The drawings shall be prepared in accordance with the City’s Computer Aided Design and Drafting (CADD) standards. The Contractor may use any standard engineering CADD program e.g., MicroStation and AutoCAD to prepare TCP. TCP shall be site specific. Typical plans and sections will not be accepted.

The Contractor shall coordinate with the City’s Traffic Control Section of the Field Engineering Division for the development and approval of the TCP. A Traffic Control Approach shall be approved by the City prior to the Contractor preparing the TCP. A list of traffic control items is available upon request from the Field Engineering Division as a

guideline. TCP shall be prepared in accordance with the Traffic Control Approach. A copy of the Project area base map may be obtained through the Engineer or via the following web link: [www.basemap.com](http://www.basemap.com).

The Contractor shall allow a minimum of 20 Working Days for City's review of each TCP submitted in accordance with 2-5.3, "Submittals." If extensive additions or corrections are required, the Traffic Control Section will return the marked-up print for corrections and re-submission. If no changes or corrections are required, the original engineered drawings will be retained by the Traffic Control Section. One copy, with the TCP Permit attached, will be returned to the Contractor. No extension of time will be allowed as a result of the Contractor's failure to properly produce TCP and to schedule the Work.

Architects and Engineers Professional Insurance in accordance with 7-3.10, "Architects and Engineers Professional Insurance (Errors and Omissions Insurance)" shall be required for Work including engineered "D" size TCP by the Contractor.

**7-10.2.3 Traffic Control Permit.** The Work shall not begin in the public roadway without the approved traffic control permit. The traffic control plans, including any as part of the Plans or developed by the Contractor, are not valid until Work dates are approved and a traffic control permit is issued by the City.

The Contractor shall coordinate the traffic control permit application submittal with the Work so that no items of Work will be delayed. To obtain a traffic control permit, the Contractor shall call the Engineering Traffic Control Section, (858) 495-4741 for an appointment a minimum of 2 Working Days prior to starting Work (5 Working Days when the Work will affect a traffic signal). The Contractor shall provide 2 copies of the traffic control drawings as provided in the Contract Documents or prepared by the Contractor at the time of the appointment. Upon approval of the Contractor's plans, the Traffic Control Section of the Field Engineering Division will issue the permit.

**7-10.2.4 Traffic Control Devices.** The Contractor shall furnish, install, and maintain the traffic control devices as shown on the traffic control permit and approved TCP's, and any additional traffic control devices as may be required to ensure the safe movement of vehicles and pedestrians, and to provide for the safety of construction workers. The Contractor shall maintain existing traffic control signs and traffic signals in their proper location on temporary mounting supports until permanent signs or signals are restored. The Contractor shall use traffic control devices in accordance with the latest California MUTCD (Manual on Uniform Traffic Control Devices). The name of the Contractor or Supplier who owns the traffic control devices shall be clearly noted on each device.

Barricades used at night shall be equipped with flashing lights. Signs used at night shall be reflectorized with a material that has a smooth, sealed outer surface, or illuminated to show approximately the same shape and color day and night. Internally or externally illuminated signs shall be used where there is significant interference from extraneous light sources and reflectorized signs will not be effective. External light sources shall be properly shielded to protect drivers from glare. Street lighting is not adequate for sign illumination.

Traffic control devices shall conform to the following unless otherwise shown on the traffic control permit:

- a) The working hours shall be between 8:30 A.M. and 3:30 P.M. if construction is to be performed in phases; all work shall be completed in each phase prior to beginning work on the next phase. Approval of traffic drawings for hours outside of these does not constitute a guarantee that inspection will be available in accordance with 2-11, "INSPECTION."
- b) Equipment, material, or debris shall not be stored or remain in the public right-of-way without prior approval by the Engineer.
- c) Travel lanes shall be 12' wide, minimum. For lane closures on roadways with bike lanes, the rightmost travel lane shall be fourteen 14' wide, minimum.
- d) Flashing arrow boards shall be used when the posted speed is 40 mph or more, or when curvature of the roadway limits visibility.
- e) The Contractor shall maintain cross traffic and turning moves at the intersections.
- f) Trenches shall be backfilled or trench-plated at the end of each work day. An asphalt ramp shall be placed around each trench plate to prevent the plate from being dislodged. Upon completion of excavation backfill, the Contractor shall provide a satisfactory surface for traffic. Portable concrete barrier (K-rail), additional noticing, and other items may be required when trenching cannot be secured overnight by backfilling or trench-plating.
- g) The Contractor shall repair or replace traffic control devices, loop detectors, and traffic signal equipment damaged or removed as a result of operations and not designated for removal. Repairs and replacements shall be equal to existing improvements. Loop detectors shall be replaced within 3 Working Days of completion of underground work.
- h) The Contractor may use the parking lane while working next to the curb. The Contractor shall post "TOW-AWAY/NO PARKING" signs 24 hours in advance for temporary parking removal. Signs shall indicate specific days, dates, and times of restrictions. If violations occur, the Contractor shall call Police Dispatch 619-531-2000 to enforce the Tow-Away notice.
- i) The Contractor shall provide for a safe 4-foot wide pedestrian walkway along entire length of construction area.
- j) Access to private property shall be maintained to the greatest extent practicable. The Contractor shall minimize the time periods that driveways will be closed, and shall minimize inconvenience to the driveway users. When a driveway or pedestrian access is to be closed, the Contractor shall notify the property owner and tenants a minimum of 5 Working Days prior to closure, and shall explain to the owner or occupant when the closure is to start and how long the Work will take. The

Contractor shall obtain the Engineer’s approval of the notice format prior to notice release.

- k) The Contractor shall post signs notifying the public a minimum of 5 Working Days prior to closure, or detour, of streets.
- l) The Contractor shall maintain full width of all traffic lanes of the existing roadway during non-working hours and on Saturday, Sunday, designated holidays, and when construction operations are not actively in progress on Working Days. The Contractor shall keep the streets in and adjacent to the construction area clean.
- m) When constructing a new roadway, the Contractor is to install and maintain Type III barricades with flashing yellow lights and “Road Closed” signs, chain link fences, or both until the new or improved roadway is accepted by the Engineer.

The Contractor shall notify San Diego Transit at (619) 238-0100, Ext. 424, a minimum of 5 Working Days prior to excavation, construction, or traffic control affecting bus stops. The Contractor shall notify the following agencies a minimum of two 2 Working Days prior to excavation, construction, or traffic control affecting the agencies:

Fire Department Dispatch	(Street or alley closure)	(858) 573-1300
Police Department Traffic	(Street or alley closure)	(858) 495-7800
Environmental Services Dept.	(Refuse collection)	(858) 694-7000
Street Division/Electrical	(Traffic signals)	(619) 527-7500
U.S. Navy	(32 <sup>nd</sup> Street Naval Station)	(619) 556-1319
Underground Service Alert	(Any excavation)	(800) 422-4133
MTDB	(Street Closure)	(619) 557-4549

The Contractor shall submit proposed changes to and deviations from the traffic control plan permit for the Engineer’s approval. Prior to implementation, the Engineer will observe the implementation of traffic control plans and reserves the right to require the Contractor to make changes as field conditions warrant. The Engineer may approve the changes to the traffic control plan permit or if directed in writing by the Engineer, the Contractor shall call the Traffic Control Section at (858) 495-4741, for an appointment, to request a revision to the traffic control plan permit. Such changes shall supersede the original traffic control plan permit.

**7-10.2.5 Traffic Control for Resurfacing and Slurry Sealing.** Temporary reflective pavement markers shall be placed on all roadways with painted centerline immediately upon completion of the resurfacing or slurry sealing and shall be removed only for new permanent pavement striping.

**7-10.2.6 Traffic Control Signs and Notices for Resurfacing and Slurry Sealing.** The City will provide the Contractor, at the Pre-Construction Meeting, the standard format for “NO PARKING - TOW-AWAY ZONE” signs for the resurfacing and/or slurry seal portion of the Work. The Contractor shall furnish the “NO PARKING - TOW-AWAY ZONE” signs and pedestals for posting on sidewalks and streets. The “NO PARKING - TOW-AWAY ZONE” signs shall be mounted on suitable pedestals, such as tripods and barricades. Signs shall be posted

every 50' on both sides of the block affected by the proposed resurfacing, slurry sealing, or both.

The Contractor shall affix to each "NO PARKING - TOW-AWAY ZONE" sign cards with 2-inch high letters stating the day(s) of the week parking is prohibited, as well as the Contractor's company name and telephone number. The "NO PARKING - TOW-AWAY ZONE" signs shall be removed immediately following the completion of the resurfacing, slurry sealing, or both.

For each street block segment scheduled for slurry sealing or resurfacing, the posted parking prohibition shall be for 2 consecutive Working Days. The Contractor shall schedule the slurry sealing on the first posted Working Day, unless approved by the Engineer. The second posted Working Day shall be reserved for emergency work, and may be used only with the approval of the Engineer. Street block segments which are not completed by the second posted Working Day shall be rescheduled. "NO PARKING - TOW-AWAY ZONE" signs shall be placed no less than 48 hours in advance and no more than 72 hours in advance of the scheduled slurry sealing. Street block segments which are not completed by the last posted Working Day shall be rescheduled. If a Work delay of 48 hours or more occurs from the originally scheduled Work date, the "NO PARKING - TOW-AWAY ZONE" signs shall be removed for a minimum of 24 hours, then reset and re-posted for the appropriate Work date.

The Contractor shall furnish and distribute door hanger notices in sufficient quantities to advise the general public of the scheduled parking prohibitions. The Contractor shall include the company name and telephone number on each door hanger notice. The Engineer shall approve the format of the door hanger notice prior to its distribution. The door hanger notices shall be left on or at the front door of each dwelling and apartment unit and at each tenant of commercial buildings abutting each of the street block segments to be slurry sealed or resurfaced. Where the front doors of apartment units are inaccessible, door hanger notices shall be distributed to the apartment manager or security officer. The Contractor shall deliver copies of the door hanger notice to a responsible party of commercial buildings, schools, hospitals, churches, and other public buildings. Door hanger notices shall be distributed no less than 48 hours in advance and no more than 72 hours in advance of the scheduled resurfacing.

**7-10.2.7 Measurement and Payment.** Payment for traffic control Working Drawings, "D" size TCP, and permits shall be included in the Bid item for Traffic Control Design. If no Bid item is provided, payment shall be included in the various items of Work.

Payment for traffic control devices and any required signs and notices, shall be included in the lump sum Bid item for the Traffic Control when provided in the Bid proposal. Traffic control devices which may be required by the City, not included as separate Bid items, shall be included in the payment. If no Bid item is provided, payment for traffic control devices shall be included in the various items of Work.

When included in the Bid proposal, the following traffic control devices will be measured and paid separately:

- a) K-rail will be measured and paid for per linear foot along the top of the rail per location. Maintaining, repairing, replacing, and removing the K-rail, excavation and backfill, drilling holes and grouting threaded rods or dowels when required, removing threaded rods or dowels and filling drilled holes with mortar, and moving and replacing removable panels as required, complete in place, as shown on the Plans, and in accordance with these specifications and the Special Provisions shall be included in the Bid item for K-rail.
- b) Crash cushion modules will be measured per each individual module (barrel), on a one-time basis, for each location shown on the plans. Maintaining, repairing, replacing, and removing the modules, complete in place, as shown on the Plans and in accordance with these specifications and the Special Provisions shall be included in the Bid item for Crash Cushion Modules.
- c) Maintaining, repairing, replacing, and removing the flashing arrow boards and electronic message signs, complete in place, as shown on the plans, and in accordance with these Specifications and the Special Provisions shall be included in the lump sum Bid item for Flashing Arrow Boards and Electronic Message Signs. Flashing arrow boards and electronic message signs shall be available for use 24 hours per day as required, without any additional payment for time or number of locations unless otherwise required for changed conditions.

**7-10.3 Street Closures, Detours, Barricades.** ADD the following:

Street closures, detours, barricades lights, other safety devices shall conform to current requirements covering “signs” as set forth by Caltrans.

The Contractor shall maintain, whether shown on the plan or not, existing traffic control signs or signals in their proper location on temporary mounting supports until permanent signs or signals are restored.

Traffic control safety devices shall have the owner's name clearly noted.

The payment shall be included in the various items of Bid unless specific Bid Item has been provided.

**7-10.4 Safety.** ADD the following:

The Contractor shall be solely responsible for initiating, maintaining and providing supervision of Safety precautions and programs in connection with the Work, and shall comply with all Applicable Law and regulations and any and all insurance carrier-mandated Safety requirements and programs.

**7-10.4.1 Safety Orders.** ADD the following:

If such plan varies from the shoring system standards established by the Construction Safety Orders of the Division of Industrial Safety, 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 their officers, agents, representatives, or employees.

In non-emergency situations, the Contractor shall back fill trenches and restore roadway for safe night-time traffic usage. No open trenches shall be allowed overnight or during non-working hours unless prior written approval is received from the Engineer.

**ADD: 7-10.4.5 Emergency Markout.** The Contractor shall place, by spray paint or other method approved by the Engineer, their name and emergency phone number on the trench saw cut for the following day. Payment shall be included in the price Bid for pipeline work.

**ADD: 7-10.4.6 Health and Safety Plan.** The Contractor bears the ultimate responsibility for the health and safety of its employees. These specifications shall not be construed to limit the Contractor's liability nor to assume that the City, its employees or designate, will assume any of the Contractor's liability associated with Site safety considerations. The Contractor shall have a health and safety plan in effect prior to commencement of Work. The plan shall meet all OSHA and other applicable requirements. The plan shall specifically address procedures and protocols that will be followed to monitor for the presence of hazardous atmosphere, possibility for engulfment, gasses due to organic soils or proximity to landfills, exposure to hazardous products such as may be released when grinding, cutting, or torching galvanized or painted surfaces, contaminated soil, and groundwater, and identify response actions that will be taken when these conditions are encountered. This plan shall be provided to the Engineer at least one week before any construction activities begin. The City will not assume any role in determining the adequacy of the plan on behalf of the Contractor.

**ADD: 7-10.4.7 Designation of Safety Coordinator.** The Contractor shall designate a responsible member of its organization, located at the Site, whose duty shall include the prevention of accidents at the Site.

**ADD: 7-10.4.8 Reasonable Precautions.** The Contractor shall take reasonable precautions for the Safety of, and shall provide reasonable protection to prevent damage, injury, or loss to:

- a) Workers and other persons who may be affected thereby;
- b) The Work and materials and equipment to be incorporated therein, whether in storage on or off the Site under care, custody or control of the Contractor; and
- c) other property at the Site or adjacent thereto, e.g., trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of the Construction Work.

**ADD: 7-10.4.9 Safeguards.** The Contractor shall erect and maintain, as required by existing conditions and performance of the Work, reasonable safeguards for Safety and protection, including posting danger signs and other warnings against hazards, promulgating



Safety regulations and notifying owners and users of adjacent sites and utilities, and shall comply fully with the requirements of State and/or Federal OSHA.

**ADD: 7-10.4.10 Security.** The Contractor shall furnish and install all necessary facilities to provide safe means of access to all points where Work is being performed. The Contractor shall take all precautions and measures as may be reasonably necessary to secure the Site, the Project, and the Work at all hours, including evenings, Holidays and non-work hours. Such precautions may include provision of security guards. The payment for security shall be included in the various Bid items.

**ADD: 7-10.4.11 Emergencies.** If an emergency arises or appears imminent which may affect the Safety of persons or property, the Contractor shall act immediately to prevent and mitigate actual or threatened damage, injury or loss. Additional costs or extensions of time claimed by the Contractor on account of an emergency not caused by the fault or neglect of the Contractor shall be determined as Extra Work.

**ADD: 7-10.4.12 Concrete Forms, Falsework, and Shoring.** The Contractor shall comply fully with the requirements of §1717 of the Construction Safety Orders, State Department of Industrial Relations, regarding the design of concrete forms, falsework and shoring, and the inspection of same before the placement of concrete. Where the said §1717 requires the services of a civil engineer registered in the State 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.

**ADD: 7-10.4.13 OSHA/Cal OSHA Citations.** The Contractor shall indemnify the City against fines, reasonable attorneys' fees, and defense costs resulting from citations issued to the City by either the federal, state, or local safety enforcement agencies due to the Contractor's failure to abide by applicable Safety and health standards.

**ADD: 7-10.4.14 Emergency Drills.** The City's Risk Management Plan requires the Contractor to participate in the City's initiated emergency drills. The Contractor shall make itself familiar with the emergency evacuation routes and procedures in the event of an emergency. Drills are conducted annually and are scheduled a year in advance. Further information prior to bidding is available upon request from the City's Safety and Security Officer or the Facility Manager(s) for the facility(ies) included in the Project. The information includes a listing of dates for upcoming Emergency Evacuation Drills.

Activities shall be reflected in the Schedule. Approved delay times caused by unscheduled drills may be added to the Schedule and treated as Extra Work.

The payment shall be included in the various Bid items unless a Bid item has been provided for Emergency Drills.

**ADD: 7-10.4.15 Playground Safety.** The Contractor shall provide a secured fence around the playground to prevent use or access. The fence shall not be removed until the independent Playground Safety Audit has been done by the Contractor and the City and the

City has accepted the playground design and installation and the punchlist items have been completed.

The Contractor shall provide a certification by a National Playground Safety Institute (NPSI) certified playground inspector that the installed equipment is compliant with all applicable codes.

The payment for fencing around the playground and the playground safety audit shall be included in the other Bid items unless a Bid item has been provided.

**ADD: 7-10.5 Temporary Project Signs.**

**7-10.5.1 Street Name Signs.** Upon completion of rough grading and prior to underground construction, temporary street name signs shall be provided and maintained at each intersection until the permanent street name signs have been placed.

Temporary street name signs shall be constructed and placed to the following minimum requirements:

- a) 5" high black lettering on 8"x 32" white blades.
- b) The bottom of the blades shall be a minimum of 7' above ground line, mounted on white 4"x 4" posts.
- c) Posts are to be placed radial to mid-point of curb returns, 15' in from the future face of curb.

**7-10.5.2 Project Identification Sign.** 1 to 4 signs shall be required. The City will provide the sign(s). The Contractor shall contact the Engineer to pick up the Project signs, install them at the Work location(s), and maintain them in a manner approved by the Engineer.

Project signs shall be displayed as follows:

- a) Utility Group Projects - A project identification sign and a project location sign shall be displayed at the beginning and ending of the street where construction is actively occurring.
- b) Open Sites - For a Work location(s) that are open and accessible to the public, the signs will be mounted on a standard Type II barricade and displayed everyday during work hours, then removed and stored during non-work hours.
- c) Secure and Confined Sites - For a Work location(s) that are closed and secure from public access, the signs will be continuously mounted, as directed by the Engineer, and displayed for the duration of the Contract.

The Contractor shall remove and return the signs to the City location as designated by the Engineer upon Final Completion.

**7-10.5.3 Portable Changeable Message Signs (PCMS).** Each portable changeable message sign unit shall consist of a controller unit, a power supply and a structural support system, all mounted on a trailer. The unit shall be assembled to form a complete self-contained

portable changeable message sign which can be delivered to the Site and placed in immediate operation. The complete message sign unit shall be capable of operating in an ambient air temperature range of -4° F to 158° F and shall not be affected by unauthorized mobile radio transmissions. The trailer shall be equipped so that it can be leveled and plumbed.

- a) The message displayed on the sign shall be visible from a distance of 1500' and shall be legible from a distance of 750', at noon on a cloudless day, by persons with vision of or corrected to 20/20. The sign panel shall be 3-line matrix and shall display not less than 7 characters per line. Sign messages to be displayed shall be as approved by the Engineer.
- b) The sign face shall be flat black and shall be protected from glare of the sun by a method which does not interfere with the clarity of the sign message. The sign shall be raised and lowered by means of a power driven lifting mechanism.
- c) The matrix sign shall be capable of complete alphanumeric selection.
- d) Lamp matrix type signs shall be equipped with an automatic dimming operational mode that automatically compensates for the influence of a temporary light source or other abnormal lighting conditions. The sign shall have manual dimming operation modes of 3 or more different lamp intensities.
- e) Matrix signs not utilizing lamps shall be either internally or externally illuminated at night.
- f) The controller unit shall be all solid-state containing all the necessary circuitry for the storage of at least 5 preprogrammed messages. The controller shall be installed in a location allowing the operator to perform all functions from one position. A keyboard entry system shall be provided to allow an operator to generate an infinite number of additional messages over the preprogrammed stored messages. The keyboard shall be equipped with a security lockout feature to prevent unauthorized use of the controller.
- g) The controller shall contain a nonvolatile memory to hold the keyboard created messages in memory during periods when the power is not activated. The controller shall provide for a variable message display rate which allows the operator to match the information display to the speed of the approaching traffic. The flashing off time shall be operator adjustable within the control cabinet.
- h) Full operation height shall be with the bottom of the sign at least 7' above the ground and the top no more than 14.5' above the ground.
- i) After initial placement, portable changeable message signs shall be moved from location to location as directed by the Engineer.
- j) Portable changeable message signs shall be furnished, placed, operated, and maintained at locations shown on the plans, specified in the special provisions, or designated by the Engineer.

**7-10.5.4 Payment.** Payment for temporary Project signs shall be included in the Bid item for Traffic Control. If no Traffic Control Bid item exists, payment shall be included in the various Bid items.

PCMS will be measured by the unit from actual count. The Bid item for PCMS shall include full compensation for furnishing, placing, operating, maintaining, repairing, replacing, transporting from location to location and removing the portable changeable message signs, as shown on the Plans, in accordance with these specifications, and the special provisions, and as directed by the Engineer. PCMS shall be available for use 24 hours per day as required, without any additional payment for time or number of locations unless otherwise required for changed conditions.

**ADD: 7-10.6 Traffic Plate Bridging.** The Contractor shall secure approval, in advance, from authorities concerned for the use of any bridges proposed by it for public use.

Transverse or longitudinal cuts in the right-of-way that cannot be properly completed within a workday shall be protected by structural steel plate bridging in such a way as to preserve unobstructed traffic flow. Structural steel plates placed over surface voids, such as trenches and other areas to be protected in the public right-of-way shall conform to the following:

Un-restored voids, trenches, holes, excavations, etc., that are in the pedestrian or traveled way shall be protected through the use of adequately designed barricades and structural steel plates that will support legal vehicle loads.

Structural steel plate bridging shall be designed for HS 20-44 truck loading in accordance with Caltrans Bridge Design Specifications Manual. See Table 1 - Trench Width / Minimum Plate Thickness.

Steel plates used for bridging shall extend a minimum of 12" (300mm) beyond the edges of the trench.

Plates shall provide complete coverage to prevent any person, bicycle, motorcycle or motor vehicle from being endangered due to plate movement causing separations or gaps. Plates shall be installed with the plate laid in reasonably flat plane and all vertical edges transitioned with asphaltic cold-mix or other acceptable ramping device(s) acceptable to the City.

Fine graded asphalt concrete shall be compacted to form ramps with a maximum slope of 8.5% and a minimum of 12" (300mm) taper to cover all edges of the steel plates.

Structural steel plates shall have a skid-resistant surface.

When steel plates are removed, any damage to the pavement shall be repaired with either graded fines of asphalt concrete mix, asphaltic cold mix, concrete slurry or equivalent slurry satisfactory to the Engineer.

The Contractor shall be responsible for maintenance of the structural steel bridging plates, shoring and asphalt concrete ramps.

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

Steel Plate Bridging shall be secured against movement or displacement by using adjustable cleats, shims, welding, or other devices, and shall be installed to in a manner that will minimize noise.

When steel plates are placed within the public right of way:

- a) The Contractor's name and 24-hr phone number shall be visible, legible and permanently affixed on each plate or,
- b) The Contractor shall erect sign(s) in the immediate area of the trench plate(s) identifying the Contractors name with a 24-hr phone number. The minimum height of letters and numbers shall be two inches.

The Contractor shall immediately mobilize necessary personnel and equipment after being notified by the Engineer or the City's emergency service section of a repair needed. This includes, but is not limited to, plate anchors, cold-mix, asphalt concrete to transition/ramp from the existing roadway or sidewalk to the plate surface and back down.

Failure to respond to the emergency request within two hours will be grounds for the City repairs that will be invoiced at actual cost including overhead or \$500 per incident, whichever is greater. All Traffic Control Plans currently require prompt repairs of steel plating by the Contractor. Lack of Contractor conformance may be automatic grounds for suspension of their permit, Contract, or both.

The following table shows the required minimal thickness of steel plate bridging required for a given trench width:

Table 1 - Trench Width / Minimum Plate Thickness

Trench Width	Minimum Plate Thickness
10" (0.25 m)	1/2" (13 mm)
1'-11" (0.58 m)	3/4" (19 mm)
2'-7" (0.80 m)	7/8" (22 mm)
3'-5" (1.04 m)	1" (25 mm)
5'-3" (1.6 m)	1 1/4" (32 mm)

Note: For spans greater than 5'-3" (1.6 m), a structural design shall be prepared by a California Registered Civil Engineer and approved by the City.

A Rough Road sign (W33) with black lettering on an orange background may be used in advance of structural steel plate bridging.

Payment for steel plate bridging shall be included in the various Bid items unless a Bid Item has been provided for steel plate bridging.

**ADD: 7-10.9 Site Maintenance.**

**7-10.9.1 Sanitation.** If required by the Special Provisions, the Contractor shall provide and maintain enclosed toilets for the use of the Contractor and City's officers, employees or agents. The Contractor shall keep these accommodations in a neat and sanitary condition, and shall ensure they comply with all applicable laws, ordinances, and regulations pertaining to public health and sanitation of dwellings and camps.

**7-10.9.2 Use of Site.** The Contractor shall, prior to on-site testing and inspection activities and prior to on-site mobilization for demolition and construction, prepare a Mobilization Plan for the City's review and approval based upon information provided to the Contractor by the City from time to time concerning the anticipated availability of the Site or portions thereof for tests and inspections to be performed in connection with the preparation of the Order of Magnitude Documents, for remedial work relating to Hazardous Materials and Waste as set forth in the Contract Documents, and for demolition, excavation and construction activities.

The foregoing Mobilization Plan shall be revised from time to time as necessary to incorporate additional information on Site availability provided by the City. The Contractor shall confine operations at the Site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the Site with materials or equipment. The Contractor shall at all times confine its access and use of the Site to the areas designated by the City from time to time as being delivered and available to the Contractor.

**7-10.9.3 Storage and Staging Areas.** If the Plans designate a staging location within the Project or in close proximity, the Contractor shall utilize such area for their use. Otherwise, storage and staging areas shall be the responsibility of the Contractor. The storage and staging areas shall be as close as possible to the Site. The Contractor shall be responsible for obtaining any permits, leases, or any other items necessary to obtain staging areas.

Trash, oil dumping, storage of hazardous wastes, or construction equipment material and parking, fueling of equipment shall be allowed in the MHPA or other biologically sensitive areas. The Contractor shall ensure the fueling of vehicles occurs only within designated staging areas Using appropriate catch basins and devices.

The Contractor shall meet with the Engineer at the proposed staging area prior to any use of the area to ascertain the existing condition. The Contractor shall be responsible to return the storage and staging area and the adjacent area to an equal or better condition as deemed necessary by the Engineer, at no additional cost to the City.

**7-10.9.3 Water for Construction Purposes.** The Contractor shall purchase all water for construction including water used for initial filling and final flushing of new pipeline.

Only the 2.5" fire hydrant port may be used. The 4" port shall be free for use in the event of a fire.

It shall be the Contractor's responsibility to obtain a meter and comply with the Fire Hydrant Meter Policy, Water Department Instruction, DI #55.27, dated April 21, 2000, and attached to the Contract. Violation of the requirements as set forth in the DI above shall be subject to fines or penalties pursuant to the City municipal code, §§67.15 and 67.37.

**7-10.9.4 Payment.** The payment for Site maintenance shall be included in the Bid item for Mobilization. If a pay item has not been established for Mobilization, the payment shall be included in the various Bid items.

**7-12 DVERTISING.** ADD the following:

Any advertisement referring to the City as a user of a product, material, or service by the Contractor or any Subcontractor and Supplier is expressly prohibited without prior written approval of the City.

Any advertisement referring to the City as a user of a product, material or service by the Contractor or any Subcontractor and Supplier is expressly prohibited without prior written approval of the Mayor or designee.

**7-13 LAWS TO BE OBSERVED.** ADD the following:

The Contractor shall give the notices required by law and comply with all laws, ordinances, rules and regulations pertaining to the conduct of the Work. The Contractor shall be liable for violations of the law in connection with Work provided by the Contractor.

If the Contractor observes that the Plans, Specifications, or other portions of the Contract Documents are at variance with any laws, ordinances, rules or regulations, he shall promptly notify the Engineer in writing of such variance. The City will promptly review the matter and, if necessary, shall issue a Change Order or take any other action necessary to bring about compliance with the law, ordinance, rule or regulation in questions. The Contractor agrees not to perform work known to be contrary to any laws, ordinances, rules or regulations.

**ADD: 7-13.1 Environmental & Safety Laws.** Following is not an exhaustive list of the laws to be complied with by the Contractor. It is a partial list of some specific laws that the Contractor shall be aware of and comply with. They are added here for convenience as follows:

- a) Environmental Protection Agency regulations (40 CFR, Part 15).
- b) Clean Air Act of 1970, e.g., §306 (42 U.S.C. 7606), Executive Order 11738, prohibiting contracting with Clean Air Act violators; and §§608 and 609 (42 U.S.C. 7671g, 7671h) as amended November 15, 1990, prohibiting the intentional release of chlorofluorocarbons into the environment when performing Work.
- c) Clean Water Grant Program Bulletin 76A which augments the National Historic Preservation Act of 1966 (16 U.S.C. 470) as specified under §[01560], "Temporary Environmental Controls" of the General Requirements.



- d) CAL OSHA 5189 “Process Safety Management,” CAL OSHA 3220 “Emergency Action Plan,” Federal OSHA 29, CFR 1910, facilities Process Safety Management (PSM) manual, and the City’s Risk Management Plan.
- e) Flood Disaster Protection Act of 1973 (42 USC 4001 et seq, as amended).
- f) Senate Bill 198 and specifically shall have a written Injury Prevention Program on file with the City in accordance with all applicable standards, orders, or requirements of California Labor Code, §6401.7.

This Program shall be submitted to the Engineer at the preconstruction meeting.

- g) State Energy Conservation Plan issued in compliance with the Energy Policy and Conservation Act (P.L. 94-163) as set forth in Division 15 of the Public Resources Code of the State.

**ADD: 7-13.2 Nondiscrimination.** The Contractor shall comply with all applicable federal, state and local laws; ordinances, rules, statutes, orders, regulations, or other legal requirements of California; the California Fair Employment and Housing Act; those Laws prohibiting discrimination, on account of race, color, national origin, religion, age, sex or handicaps, e.g.,: zoning, environmental, building, fire and safety codes and coverage, density and density ratios and lien laws existing as of the date of the execution of this contract.

The City agreements, contracts, Subcontracts, etc, are subject to the City Ordinance No. 0-2000-143 adopted on April 10, 2000 and the provisions of Municipal Code §§22.3401-22.3417. The policy applies equally to the Contractor, Subconsultants and Subcontractors. The Contractor shall insure that the following clauses are incorporated in all Subcontracts issued in support of the Project.

The Contractor shall not discriminate on the basis on race, gender, religion, national origin, ethnicity, sexual orientation, age, or disability in the solicitation, selection, hiring or treatment of Subcontractors or Suppliers. The Contractor shall provide equal opportunity for Subcontractors to participate in subcontracting opportunities. The Contractor understands and agrees that violation of this section shall be considered a material breach of the contract and may result in contract termination, debarment, or other sanctions.

Upon the City’s request, the Contractor agrees to provide to the City, within 60 days, a truthful and complete list of the names of all Subcontractors and Suppliers that the Contractor has used in the past five years on any of its contracts that were undertaken within San Diego County, including the total dollar amount paid by the Contractor for each Subcontract or supply contract.

The Contractor further agrees to fully cooperate in any investigation conducted by the City pursuant to the City’s Nondiscrimination in Contracting Ordinance (Municipal Code §§22.3401-22.3417). The Contractor understands and agrees that violation of this section shall be considered a material breach of the contract and may result in remedies being ordered against the Contractor up to and including contract termination, debarment, and

other sanctions for violation of the provisions of the Nondiscrimination in Contracting Ordinance.

**ADD: 7-14 INDEMNIFICATION AND HOLD HARMLESS AGREEMENT.** Contractor agrees to defend, indemnify, protect and hold City, its agents, officers and employees, harmless from and against all claims asserted, or liability established for damages or injuries to any person or property including to Contractor's employees, agents or officers, or judgments arising directly or indirectly out of obligations, work or services herein undertaken, which arise from, are connected with, are caused or claimed to be caused by the acts or omissions of the Contractor, its agents, officers and employees. The obligation to indemnify shall be effective even if the City, its agents, officers or employees established passive negligence contributes to the loss or claim. The Contractor agrees that the City may elect to conduct its own defense or participate in its own defense of any claim related to this project. The Contractor's duty to indemnify and hold harmless shall not include any claims or liability arising from the established active or sole negligence, or sole willful misconduct of the City, its agents, officers or employees.

**ADD: 7-15 CONFLICT OF INTEREST.** The Contractor shall establish and make known to its employees appropriate safeguards to prohibit employees from using their positions for a purpose that is, or gives the appearance of being, motivated by desire for private gain for themselves or others, particularly those with whom they have family, business, or other relationships. Project personnel shall not accept gratuities or any other favors from Subcontractors or potential Subcontractors.

The Contractor shall be subject to all federal, state and local conflict of interest laws, regulations, and policies applicable to public contracts and procurement practices, e.g., California Government Code §§1090, et. seq., and 81000, et. seq., and the City Ethics Ordinance, codified in the City Municipal Code at §§27.3501 to 27.3595. If, in performing the Services and/or Work set forth in this contract, the Contractor makes, or participates in, a "governmental decision" in accordance with title 2, §18701(a)(2) of the California Code of Regulations, or performs the same or substantially all the same duties for City that would otherwise be performed by a City employee holding a position specified in the applicable department's conflict of interest code, the Contractor shall be subject to a conflict of interest code requiring the completion of one or more statements of economic interests disclosing the Contractor's relevant financial interests.

Statements of economic interests shall be made on Fair Political Practices Commission Form 700 and filed with the City Clerk. The Contractor shall file a Form 700 (Assuming Office Statement) within 30 days of the City's written determination that the Contractor shall be subject to a conflict of interest code. The Contractor shall file a Form 700 (Annual Statement) on or before April 1, disclosing any financial interests held during the previous calendar year for which the Contractor was subject to a conflict of interest code.

If the City requires the Contractor to file a statement of economic interests as a result of the Services and/or Work performed, the Contractor shall be considered a "City Official" subject

to the provisions of the City Ethics Ordinance, including the prohibition against lobbying the City for one year following the expiration or termination of this contract.

The Contractor's personnel employed on the Project shall not accept gratuities or any other favors from any Subcontractors or potential Subcontractors. The Contractor shall not recommend or specify any product, supplier, or contractor with whom the Contractor has a direct or indirect financial or organizational interest or relationship that would violate conflict of interest laws, regulations, or policies.

If the Contractor violates any conflict of interest laws or any of these conflict of interest provisions, the violation shall be grounds for immediate termination of this Contract. Further, the violation subjects the Contractor to liability to the City for all damages sustained as a result of the violation.

**ADD: 7-16 COMMUNITY LIAISON.** The Contractor shall retain a community liaison representative throughout the Contract Time. The representative shall closely coordinate Work with the businesses, institutions and residents impacted by the Project. Duties shall include, but not be limited to, notification to the businesses, institutions and residents of the commencement of construction activities not less than 5 Working Days in advance, coordination of access for vehicular and pedestrian traffic to businesses, institutions and residences impacted by the Project, response to community questions and complaints related to the Contractor's activities, reporting of liaison activities at all Project progress meetings scheduled by the Engineer, attendance to the Project pre-construction meeting, and attendance at 2 community meetings.

The Contractor shall present their community liaison representative to the City, in writing, within 15 days of the award of the Contract.

**7-16.1 Payment.** The payment for the community liaison shall be included in the various Bid items.

**ADD: 7-17 NEWSLETTER.** When required in the Special Provisions one week before the end of every month, the Contractor shall submit to the City a written update on the progress of work, a 1 month look-ahead schedule, contact names and phone numbers, and any other information which may be of interest to the public. The City will utilize this information to create and distribute a newsletter the first of every month.

Payment for the Newsletter shall be included in the various Bid items.

**ADD: 7-18 PATENTS, TRADEMARKS, AND COPYRIGHTS.** The Contractor shall pay, at no additional cost to the City, all applicable royalties and license fees on any and all matters arising in connection with the Work. The Contractor shall defend all suits or claims for infringement of patent, trademark, and copyrights against the City and any other Indemnified Parties, and shall save the City and any other Indemnified Parties harmless from loss on account thereof for any and all matters arising in connection with the Work on the Project, such costs to be paid at no additional cost to the City, except with respect to any particular design process or the product of a particular manufacturer or manufacturers specified and required by the City, other than pursuant to the recommendation or

suggestion of the Contractor; provided however, if the Contractor has reason to believe that the design, process or product so specified is an infringement of a patent, the Contractor shall be responsible for any loss resulting unless the Contractor has provided the City with prompt written notice of the Contractor's belief, and the City has nevertheless elected to go forward with such design, process or product so specified.

### SECTION 8 - FACILITIES FOR AGENCY PERSONNEL

**ADD: 8-2.0 General.** If specified in the Special Provisions, Field office for the City's use shall be required. The field office and contents specified in these specifications shall be retained by the Contractor upon completion of the Project.

**8-2.1 Class "A" Field Office.** DELETE in its entirety and SUBSTITUTE the following:

The Contractor shall provide the City with a field office for use by the City field personnel as follows:

- a) The field office shall be a standard office trailer, 10' wide by 60' long, minimum dimensions, with an interior layout providing two fully partitioned offices and a fully partitioned conference room, plus any necessary halls or passageways. The field office shall be located at the Site and shall be designated as the Engineer's Office.
- b) The field office shall be leased for a time period consistent with construction operations, commencing on the date of issuance of the NTP.
- c) The field office shall be completely outfitted and equipped as specified and prepared for occupancy before the start of construction.
- d) The field office shall remain operational during active construction.
- e) The furniture and equipment shall be retained by the Contractor upon completion of the Project.

**8-2.1.1 Field Office Features and Equipment.** The following features shall be built into the field office:

- a) Windows shall be fitted with screens and blinds or curtains.
- b) An air conditioning and heating system capable of automatically maintaining an office temperature of 72 °F during all seasons.
- c) 8 110V duplex convenience outlets.
- d) 1 exterior door with an exterior light.
- e) A supply of bottled drinking water with a dispenser that provides both hot and cold water. The Contractor shall provide and maintain the supply of bottled drinking water at all times during the construction period.

- f) The Contractor shall provide 1 portable chemical toilet located nearby, but separately from the field office trailer.

**8-2.1.2 Furnishings.** As a minimum, the field office shall be outfitted with the following furnishings:

- a) 2 Desks (matching).
- b) 2 Matching cushioned swivel chairs with arms.
- c) 3 Plan tables, 8'x2 ½' minimum.
- d) 2 Bookcases, 60" high x 48" wide x 12" deep, 5 adjustable shelves.
- e) 3 Wastebaskets.
- f) 8 Stacking chairs.
- g) 1 4'x6' whiteboard for use by felt tip type markers. Provide 3 markers each in red, green, blue, and black colors, plus 2 erasers.
- h) 2 4-drawer, legal-sized, metal filing cabinets with integral drawer locks.
- i) 2 Wastebaskets (matching).
- j) 1 Telephone answering machine with remote access features.
- k) 1 High Speed Internet Access Line i.e., DSL with paid Internet Service Provider (ISP) services for a period consistent with the construction operations.
- l) 1 Small refrigerator.
- m) 1 FAX machine. Provide the paper supply for the FAX machine if it uses anything but plain paper.
- n) 1 Telephone line.
- o) 2 Non-coin operated telephones. The telephones shall have extension cords which shall reach any table or desk in the field office.
- p) 1 Computer desk with two drawers, and sized to fit the computer, monitor, and printer.
- q) 4 Swivel chair for computer workstation.
- r) 1 Computer Workstation – New HP Compaq Business Desktop dc5700 dc5700 Intel Pentium 4 641 3.2GHz Desktop, Intel Pentium 4 641 3.2GHz, 2MB L2, 1GB PC2-5300 DDR2, 80GB 7200rpm SATA, SATA CD-RW/DVD Combo, integrated Intel GMA 3000, TPM1.2, Broadcom 5755 Gigabit NIC, Small Form Factor or equal with 17" color monitor, keyboard, and mouse and loaded with Windows XP SP2, Office Pro 2003, SAV 10. HP LaserJet 1018 Printer or equal. HP Scanjet 5590 Digital Flatbed Scanner or equal.
- s) 1 Rented or leased xerography process copier complete with an automatic feeder, twenty (20) bin sorter and stand. The photocopier shall be a Panasonic Model FP-2230, Sanyo Model 126, or equal. Provide a monthly maintenance policy (service contract). This policy shall include all labor and parts, including travel and consumable supplies such as drums, developer toner and fuser rollers, but excluding

paper. The maintenance policy shall be based on 5,000 copies per month. An appropriate storage cabinet/stand shall be provided with the photocopier.

**8-2.1.3 Field Office Maintenance.** The Contractor shall service, maintain, and clean the field office on a weekly basis to the Engineer's satisfaction. This shall include servicing, cleaning, and maintaining the portable chemical toilet, and replenishing bottled drinking water supplies.

The Contractor shall service and maintain field office equipment. For the air conditioning system, the maintenance shall be performed at intervals recommended by the supplier or manufacturer, or as directed by the Engineer.

The Contractor shall be responsible for maintenance of all items supplied. The Contractor shall repair or replace any equipment or furnishing in the event of damage or theft, at no additional cost to the City.

**8-2.1.4 Field Office Security.** The Contractor shall be responsible for field office security. The Contractor shall provide field office security measures necessary for personal protection and prevention of vandalism and theft.

**8-2.1.5 Submittals to Be Provided.** The following submittals shall be provided to the Engineer for review and acceptance:

- a) A proposed layout of the interior of the field office, showing wall partitions, doors, and telephone and electrical outlets.
- b) A proposed site plan showing the field office location at the Site.
- c) Location and mailing address of the field office.
- d) Computer workstation literature specifying peripherals and software included.
- e) Manufacturer's information for the FAX machine.

**ADD: 8-2.4 Class "D" Field Office.** The Contractor shall provide the City a field office for the exclusive use of the City, detached from the Contractor's field office. The City's field office shall consist of a 175 square foot space (minimum) trailer equipped with the following:

- a) A chemical toilet facility adjacent to the field office.
- b) At least one exterior door and window area of not less than 22 ft<sup>2</sup>. Doors and windows shall be provided with screens.
- c) Electric power to include a minimum of four duplex convenience outlets. The office shall be illuminated at the tables and desk. An outdoor lighting fixture with 300W bulb or equal installed to effectively light the area around the field office facility when required by the Engineer.
- d) Furniture and equipment:
- e) 2 desks and 6 chairs,
- f) File cabinet (2-drawer, legal),
- g) 1 Bookcase,
- h) Computer Workstation – New HP Compaq Business Desktop dc5700 dc5700 Intel Pentium 4 641 3.2GHz Desktop, Intel Pentium 4 641 3.2GHz, 2MB L2, 1GB PC2-5300 DDR2, 80GB 7200rpm SATA, SATA CD-RW/DVD Combo, integrated Intel GMA 3000,

TPM1.2, Broadcom 5755 Gigabit NIC, Small Form Factor or equal with 17" color monitor, keyboard, and mouse and loaded with Windows XP SP2, Office Pro 2003, SAV 10. HP LaserJet 1018 Printer or equal. HP Scanjet 5590 Digital Flatbed Scanner or equal. The Computer Workstation shall become the Contractor's property at the completion of Work.

- i) 1 table reference (30"x60"),
- j) 1 Non-coin-operated telephones with 1 incoming line each,
- k) High Speed Internet Access Line i.e., DSL with paid Internet Service Provider (ISP) services for a period consistent with the construction operations.
- l) A copy machine and supplies,
- m) A fax machine and its supplies in the Engineer's office space.

### SECTION 9 – MEASUREMENT AND PAYMENT

**ADD: 9-2.2.1 Schedule of Values (SOV).** Within 10 days of execution of this contract, the Contractor shall submit for the City's review and approval an SOV for the lump sum Bid items of the Work. The Schedule of Values will:

- a) subdivide the Work into its respective parts,
- b) include values for all items comprising the Work, and
- c) serve as the basis for monthly progress payments made to the Contractor throughout the Work.

The City shall be the sole judge of acceptable numbers, details, and description of values established. If, in the opinion of the City, a greater number of SOV items than proposed by the Contractor are necessary, the Contractor shall add the additional items so identified by the City. When requested by City, the Contractor shall provide substantiating data in support of scheduled values.

The Contractor shall incorporate the SOV into the cost loading function of the Schedule in accordance with 6-1, "CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK." Monthly progress payment amounts for Lump Sum items shall be determined from the monthly updates of the Schedule activities.

The SOV shall be developed independent but simultaneous with the development of the Schedule activities and logic. The SOV shall incorporate phase funding impacts, if applicable.

The Work not specifically included in the Bid shall be broken down as necessary for establishment of cost and Schedule activity.

Following acceptance of the SOV, the Contractor shall incorporate the changes (if any) into the cost loading portion of the Schedule. Where coordination of the Schedule and the SOV requires changes made to one or both documents, the Contractor shall propose changes to the SOV and to the Schedule activities to satisfy the Schedule cost loading requirements.

For lump sum Design-Build contracts, the Contractor shall provide a cross reference listing which shall be furnished in two parts. The first part shall list each Scheduled activity with the breakdown of the respective valued items making up the total cost of the activity. The



second part shall list the valued item with the respective Scheduled activity or activities that make up the total cost indicated. In the case where a number of schedule activities make up the total cost for a valued item (shown in the SOV) the total cost for each scheduled activity shall be indicated. The total amount of each part shall equate to the Contract Price.

These listings shall be updated and submitted in conjunction with the Schedule monthly submittals.

Issued Change or Field Orders reflected in the Schedule shall be incorporated into the SOV as single units identified by the Change or Field Order number.

Changes to the Schedule which add activities not included in the original Schedule but included in the original Work (schedule omissions) shall have values assigned as accepted by the City. Other activity values shall be reduced to provide equal value adjustment increases for added activities as accepted by the City.

In the event that the Contractor and the City agree to make adjustments to the original SOV because of inequities discovered in the original accepted SOV, increases and equal decreases to values for activities may be made.

**9-2.2.2 Payment.** Payment for the preparation of the SOV shall be included in the various Bid items.

**9-3.1 General.** First paragraph, ADD the following:

DELETE the tenth paragraph in its entirety and SUBSTITUTE the following:

At the expiration of 35 days from the date of filing NOC with the County Recorder and upon receipt by the City Auditor of a fully executed Release of Claims, the amount deducted from the final estimate, and retained by the City, will be paid to the Contractor except such amounts as are required by law to be withheld by properly executed and filed notices to stop payment.

Acceptance by the Contractor of Final Payments shall be and shall operate as a release to the City of all claims in stated amounts that may be specifically excepted by the Contractor for things done or furnished in connection with this Work and for every act and neglect of the City and others related to or arising out of this Work. Payment by the City shall not release the Contractor or its Surety from any obligation under Contract or under the performance bond and payment bonds.

**9-3.2 Partial and Final Payment.** DELETE the third paragraph in its entirety and SUBSTITUTE with the following:

From each progress estimate, an amount (Retention) not less than 5% of the completed Work will be deducted and retained by the City. The City will withhold not less than 5% of the Contract Price until Final Acceptance of the Project.

If in the opinion of the Engineer the Work progress is not acceptable, the City may deduct and retain 10% from each progress payment. After 50% of the Work has been completed and if progress on the Work is satisfactory, the total retention held may be limited to 10% of the first half of Contract Price.

ADD the following:

Partial payments made after the Contract completion date will reflect the amount withheld for liquidated damages as required by 6-9, "LIQUIDATED DAMAGES." Any such partial payments made to the Contractor, or its Sureties, will not constitute a waiver of the City's liquidated damages.

Pursuant to California Public Contract Code §22300, the Contractor has the option, at its expense, to substitute for any money withheld by the City, securities equivalent to the amount being withheld. Securities eligible for such substitution are bank or savings and loans certificates of deposit or such securities which are eligible for investment pursuant to Government Code §16430. As to any such security or securities so substituted for monies withheld, the Contractor shall be the beneficial owner of same and shall receive any interest thereon.

Such security shall, at the request and expense of the Contractor, be deposited with the City or with a State or Federally Chartered bank as the escrow agent who shall pay such monies to the Contractor upon notification by the City that payment can be made. Such notification will be given at the expiration of 35 days from the date of acceptance of the work, or as prescribed by law, provided however, that there will be a continued retention of the necessary securities to cover such amounts as are required by law to be withheld by properly executed and filed notices to stop payment, or as may be authorized by the Contract to be further retained.

Neither Final Payment nor any final release of Retention shall become due until the Contractor submits to the City:

- a) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the City or the City's property might be responsible or encumbered, less amounts withheld by the City, have been paid or otherwise satisfied;
- b) a certificate evidencing that insurance required by the Contract Documents to remain in force after Final Payment is currently in effect and will not be canceled or allowed to expire until at least 30-day prior written notice has been given to the City;
- c) consent of Surety to Final Payment; and
- d) if required by the City, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract Documents. If a Subconsultant or Subcontractor refuses to furnish a release or waiver required by the City, the Contractor may furnish a bond satisfactory to the City to indemnify the City against such lien, and
- e) if required in the Contract Documents, the successful completion and submittal of the required reports such as construction demolition waste recycling and hydrostatic discharge reports.

The Contractor has completed all Work, e.g., providing required, as-built drawings, operations manuals, test reports, UL labels, and other similar documentation as determined by the City.

**ADD: 9-3.2.1 Application for Progress Payment.** By the tenth day of each month, the Contractor shall submit to the Engineer a partial payment estimate, filled out and signed by the Contractor, that identifies acceptable Work performed during the previous month, or since the last partial payment estimate was submitted. If requested by the Engineer, the Contractor shall provide such additional data as may be required to support the payment estimate. Such data may include satisfactory evidence of payment for equipment, materials, and labor, including payments to Subcontractors and suppliers.

For application for progress payment, the Contractor shall use the format required by the City. An electronic copy of the invoice form is available from the Engineer upon request.

Progress or partial payments shall not be made until the Contractor submits to the City an updated Schedule that meets the City’s requirements. It is solely the responsibility of the Contractor to prepare and submit the Schedule updates.

30 days after presentation of undisputed and properly submitted Application for Payment, the amount will become due and when due will be paid by the City to the Contractor. Any payment request that is disputed or determined to be improper will be returned to the Contractor not later than 7 days after receipt accompanied by documentation describing the reason(s) why the payment request is not proper.

**ADD: 9-3.2.2 Amount of Progress Payments.** Provided an undisputed and properly submitted Application for Payment is received by the City, payment shall be made by the City not later than thirtieth day after the City receives the application for Payment. The City will pay the Contractor for Work performed, including payment for off-site stored materials, through the period covered by the application for Payment, less Retention as set forth in the Contract Documents, provided that the payment amount before Retention will not exceed the percentage of completion of the Work, all as set forth in the SOV.

**9-3.2.2.1 Progress Payment for Pipelines.** Progress payments for pipelines will be determined by multiplying the total number of linear feet of each of the following operations completed during the payment period, by the corresponding percentage given below, and the unit price Bid for the particular main(s) or drain(s). The progress payment may include payment for items in the Bid proposal, other than mains, which have been installed complete during the payment period.

<u>OPERATION</u>	<u>PERCENTAGE</u>
<b>WATER:</b>	
Trench Excavation, Pipe in Place, Backfill and Cleanup.	80%
Hydrostatic and Bacterial Testing.	
Pavement Restoration and Final Cleanup	20%
<b>SEWER:</b>	
Trench Excavation, Pipe in Place, Backfill and Cleanup.	80%
Testing (Wayneball and/or Mandrel).	
Pavement Restoration and Final Cleanup.	20%
<b>STORM DRAIN:</b>	
Trench Excavation, Pipe in Place, Backfill and Cleanup.	80%

Pavement Restoration and Final Cleanup. 20%

In asphalt-surfaced streets, 15% payment will be made for hydrostatic and bacterial testing, Wayneball and Mandrelling (where necessary), for water and sewer utility constructions respectively, and operational testing for storm drains, including the concrete trench cap in accordance with the City of San Diego Standard Drawing SDG-107 "Trench Resurfacing for Asphalt Concrete Surface Streets" and cleanup. Remaining 5% payment shall be made after completing the asphalt wearing surface and final cleanup.

Trench excavation, pipe in place, backfill, and cleanup of construction debris are to be treated as one operation and shall be complete before the first 80% payment will be made.

**ADD:9-3.2.3 Waiver of Claims at Final Payment.** Acceptance of Final Payment by the Contractor shall constitute a waiver of affirmative Claims by the Contractor, except those previously made in writing and identified as unsettled at the time of Final Payment, which are expressly reserved by the Contractor from operation of its Release of Claims pursuant to PCC7100 or other Applicable Law.

**ADD:9-3.2.5 Early Release of Subcontractor Retention.** If a Subcontractor has completed its portion of the Work, including all Punch List items, pursuant to any given Subcontract, the Contractor may request the City to disburse the Retention allocable to such Subcontractor, after delivering to the City acceptable releases from the Subcontractor and consent to such disbursement from such the Contractor's Surety, in a form reasonably satisfactory to the City. The City, at its sole discretion, may determine that the Subcontractor's Work has been completed in accordance with the Contract Documents, and may disburse the Subcontractor's share of Retention to the Contractor for distribution to the Subcontractor. Regardless of whether the City has disbursed Retention for the benefit of any Subcontractor, the 1 year warranty period with respect to such Work shall commence at completion of the Work.

**ADD: 9-3.2.6 Withholding of Payment.** The City may withhold payment on account of an Application for Payment to the extent necessary to protect the City from loss because of:

- a) Defective or incomplete Work not remedied;
- b) A deductive Change Order;
- c) Third Party Claims filed or reasonable evidence indicating probable filing of such Claims;
- d) Failure of the Contractor to make payments of undisputed amounts to Subconsultants or Subcontractors for labor, materials or equipment;
- e) Damage to the City or a Separate Contractor caused by the fault or neglect of the Contractor to the extent not covered by insurance;
- f) Reasonable evidence that the Work will not be completed within the Contract Time due to Inexcusable Delay, and that the unpaid balance of the Contract Price would not be adequate to cover Liquidated Damages for the anticipated or actual Unexcused Delay;
- g) Persistent failure of the Contractor to perform the Work in accordance with the Contract Documents, including failure to maintain the progress of the Work in

accordance with the Construction Schedule. Persistent failure to maintain the progress of the Work shall mean that for a period of two consecutive months following a written notice from the Construction Manager, the Contractor fails to correct a behind-schedule condition at a rate that would reasonably indicate that he will finish the Project on schedule;

- h) Disregard of authority of the Construction Manager or the laws of any public body having jurisdiction; or
- i) Stop notices, wage orders, or other withholdings required by Applicable Law.

When all the above reasons for withholding payment are removed, payment shall be made for amounts previously withheld. Prior to any withholding pursuant to this section, the City will meet with the Contractor to discuss potential withholding, and attempt in good faith to resolve such issue without the need for withholding.

**ADD:9-3.3.1 Payment for Stored Materials.** The Contractor may request payment for products (i.e., material, equipment, or both) which will be incorporated into the Work (excluding living or perishable plant materials) and are delivered to the Project or stored per manufacturer's recommendation in or near the Site.

Consideration will only be given to materials for major items of the Work or Materials Subject to Price Adjustment (when Price Adjustment is included in the Contract Documents) provided each such individual item has a value of more than 1% of the Contract Price and will become a permanent part of the work. Materials cost shall be evidenced by manufacturer's paid invoice bearing the statement that all previous invoices have been paid.

The Contractor shall provide the City, upon request and prior to any partial payment, documentation which transfers absolute legal title to such materials to the City conditional only upon receipt of Final Payment. Neither such transfer of title nor any partial payment shall constitute acceptance by the City of the materials, nor void the right to reject materials subsequently found to be unsatisfactory in accordance with 4-1, "MATERIALS AND WORKMANSHIP" or in any way relieve the Contractor of any obligation arising under the Contract Documents.

Partial payments may be made to the extent of the delivered cost of approved materials delivered or stored. The Contractor shall make application for payment for materials on hand or stored on a form provided by the City to:

- a) show the amount originally paid on the invoice (or other record of production cost) for the items on hand,
- b) the dollar amount of the material incorporated into each of the various work items for the month, and
- c) the amount that should be retained in material on hand items.

The application for payment shall be accompanied by a bill of sale, paid invoice, or other documentation warranting that the Contractor has received the materials and equipment free and clear of all liens, charges, secured interests, and encumbrances and evidence that the materials and equipment are covered by appropriate property insurance in accordance with the insurance provisions and other arrangements to protect the City's interest.

The Contractor shall assume all risks associated with the loss or damage to the stored products for which payment has been received or not.

The payments for materials on hand shall not exceed the invoice price or 60% of the bid prices for the pay items into which the materials are to be incorporated, whichever is less, unless otherwise approved by the Engineer, and shall be subject to retention as set forth in 9-3.2, "Partial and Final Payment." Any and all surplus materials that are not incorporated in Work will become the property of the Contractor at no additional cost to the City.

Unless specifically provided in the contract, payment for materials on hand is not included when determining the percentage of Work completed.

The material shall meet Contract requirements. The required test results and/or certifications shall be on file with the Engineer.

Equipment and material shall be stored in accordance with manufacturer's recommendations. The stored products shall be in a form ready for installation. The City will not pay for raw materials or parts and pieces of equipment.

**ADD: 9-3.3.2 Payment for Stored Materials off Site.** Payment for materials stored off-site shall be subject to the provisions in 9-3.3.1, "Payment for Stored Materials" and the following:

The City reserves the right to refuse approval for payment for any equipment or materials suitably stored off-site in its sole discretion, regardless of whether all conditions herein have been met.

Partial payment may be made for products eligible for off-site delivery and storage only upon presentation by the Contractor of a bill of sale, a paid invoice or an affidavit certifying that the material is received by the Contractor free and clear of all liens, encumbrances and secured interests of any kind, and including, for off-site delivery.

Partial payment for products delivered and stored off-site shall be contingent upon the Contractor's compliance with the storage and protective maintenance requirements set forth in the Contract Documents and all other requirements necessary to preserve equipment warranties for the benefit of the City.

Costs associated with delivery to and storage at an off-site facility shall be assumed by the Contractor regardless of the City's approval to deliver and store the materials.

The Contractor shall provide written evidence to the City of having made arrangements for unrestricted access by the City and its authorized representatives to the materials wherever stored, including provision for the City to take control and possession of such materials at any time and without restriction. The Contractor shall furnish the City a permit of entry, from the owner of the property, for at least 6 months after the NOC has been filed. The permit of entry shall contain information similar to the following:

*PERMIT OF ENTRY: Permission is hereby granted to the City and its designated employees or agents to enter upon the property described herein for a period of not less than 6 months after the NOC has been filed for (Project Name) for the purpose of removing materials for which advance materials on hand payment has been made to (Contractor's Name). The property is owned by (Owner's Name) and is described as follows: (Address and Description of*

*Property). (Include signature(s) and date(s) for owner and lessee or purchaser, and, if appropriate, attach a copy of a warehouse receipt or contract for storage.)*

The material shall be clearly marked and identified as being specifically fabricated, produced, and reserved for use on the Project.

**9-3.4 Mobilization:** ADD the following:

Mobilization shall consist of labor and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to and from the Site; for establishment of all offices, buildings, storage yards, and other facilities necessary for Work, and for all other work and operations which shall be performed prior to beginning Work and after completion of Work on the various Contract items on the Site.

The Contractor shall properly design the Project parameters to incorporate construction mobility for moving on and off the Site in a manner that limits disturbance to the surrounding residences, businesses, and any other citizens. Specifically, this includes, but is not limited to, the designated staging areas, loading areas, and assemblage areas. The Contractor shall consider and address access rights of the public at all times. The Contractor shall be required to prepare a “Mobilization Plan” that will describe and govern the Contractor’s mobilization activities.

The complete dismantling and removal by the Contractor of all of the Contractor’s temporary facilities, equipment, materials, construction wastes, and personnel at the Site referred to as demobilization shall be included in mobilization.

**9-3.4.2 Payment.** When no such Bid item is provided, payment for Mobilization shall be included in the various Bid items.

Payment for Mobilization will be the lesser amount from columns B and C of the Table 9-3.4.2 (A) as follows:

Table 9-3.4.2 (A)

IF A <sup>1</sup> IS	B AMOUNT IS	C AMOUNT IS
05	0.2 x Mobilization Bid Item	0.02 x CONTRACT PRICE
10	0.4 x Mobilization Bid Item	0.04 x CONTRACT PRICE
20	0.5 x Mobilization Bid Item	0.05 x CONTRACT PRICE
50	0.7 x Mobilization Bid Item	0.07 x CONTRACT PRICE
70	0.8 x Mobilization Bid Item	0.08 x CONTRACT PRICE
90	0.9 x Mobilization Bid Item	0.09 x CONTRACT PRICE
100 <sup>2</sup> OR MORE	1.0 x Mobilization Bid Item	0.10 x CONTRACT PRICE

Notes:

1. A is the monthly pay estimate as a % of the original Contract Price not including amount earned for mobilization, bonds, and permits.
2. One hundred percent or more of the original Contract Price and final cleanup operations have been satisfactorily completed.



The amount, if any, of the Bid item for mobilization in excess of 10% of the original Contract Price may be included for payment in any partial payment estimate after filing of the NOC in accordance with 6-8, "COMPLETION, ACCEPTANCE, AND WARRANTY."

The adjustment provisions of the Contract in accordance with 3-2.2, "Contract Unit Prices" shall not apply to the lump sum Bid item for mobilization. When other Contract items are adjusted in accordance with 3-2.2, "Contract Unit Prices" if the costs applicable to such item of work include mobilization costs, such costs will be deemed to have been recovered by the Contractor by payments made for mobilization, and will be excluded for consideration in determining compensation in accordance with 3-2.2, "Contract Unit Prices."

**ADD: 9-3.6 Field Orders.** A Field Order is a written order by the Engineer to compensate the Contractor for items of work in accordance with 3-3, "EXTRA WORK," or 3-4, "CHANGED CONDITIONS." A Field Order does not involve change in the Contract Price or Contract Time or the intent of the Contract.

Field Order items of work may be paid for in accordance with this section provided that the cumulative total of Field Orders does not exceed the Field Order Bid Item.

Construction Contract Price	Max. Amount for Each Field Order
Less than \$100,001	\$2,500
\$100,001 to \$1,000,000	\$5,000
\$1,000,001 to \$5,000,000	\$10,000
Greater than \$5,000,000	\$20,000

**ADD: 9-3.7 Phased Funding Compensation.** For the Phased Funding contracts, ADD the following:

**9-3.7.1 Compensation under Each Phase.** Total compensation to be paid to the Contractor by the City for all Work performed under each phase of this contract shall not exceed the amount specified for each phase in the final Phased Funding Schedule Agreement unless specified otherwise by Change Order.

**9-3.7.2 Work to Be Performed Under Each Phase.** The Work to be performed under this contract as part of the first phase is identified in the Pre-Award Schedule. Subsequent phases shall be authorized by the City in advance of construction of work identified in such phases.

**9-3.7.3 Work and Compensation for Funding Phases.** The subsequent phases to the first phase are subject to funding availability by the City. The City's and the Contractor's obligations under this contract are as follows:

- a) Funds availability for performance of Work is described in the first Phased Funding Schedule Agreement and subsequently the final Phased Funding Schedule

Agreement. The amount of funds available at award shall be sufficient for the performance of first phase only. When additional funds are available for the full requirements of the next funding phase, the City will notify the Contractor. The City may modify the amount of funds as available for Contract performance in the final Phase Funding Schedule via Change Order. This procedure shall apply for each successive funding phase.

- b) The City is not obligated to the Contractor for any amount over that specified in the first Phased Funding Schedule Agreement or final Phased Funding Schedule Agreement as available for Contract performance and authorized by the City Council.
- c) The Contractor is not obligated to incur costs for the performance of Work for any funding phase after the first funding phase; unless and until written notification is received from the City of an increase in the availability of funds. If so notified, the Contractor's obligation shall increase only to the extent the Contract performance is required for the additional funding phase for which funds are made available.
- d) If the Contract is terminated in accordance with 6-5, "Termination of the Contract" the settlement proposal shall be determined pursuant to procedures established in 6-5, "Termination of the Contract" for work under specific funding phases for which funds have been made available. If the Contract is terminated for default, the City's rights under this contract shall apply to the entire multi-phase requirements.
- e) Notification to the Contractor of an increase or decrease in the funds available for performance of this contract under another clause (e.g., an "option" or "changes" clause), shall not constitute the notification contemplated in Subparagraph "a" above.

**ADD: 9-4 WAIVER OF CLAIMS.** The acceptance by the Contractor of the Final Payment of undisputed Contract amounts shall release the City, the Engineer, and the Design Consultant as agent of the City, from all claims and all liability to the Contractor for all things done or furnished in connection with the Work, and every act of the City and others relating to or arising out of the Work and related to those undisputed amounts. No payment, however, final or otherwise, shall operate to release the Contractor and the Surety from obligations under this contract and the Performance Bond, Payment Bond, and other bonds and warranties as herein provided.

**PART 2**  
**CONSTRUCTION OF MATERIALS**

**SECTION 200 – ROCK MATERIALS**

**200-1.6 Stone for Riprap.** ADD the following:

The individual classes of rocks used in slope protection shall conform to Table 200-1.6(A).

Replace Table 200-1.6(A) with:

Table 200-1.6(A)  
PERCENTAGE LARGER THAN

Rock Sizes	CLASSES					
	2 Ton (1.8 Tonne)	1 Ton (900 kg)	½ Ton (450 kg)	1/4 Ton (220 kg)	No. 2 Backing	No. 3 Backing
4 Ton (3.6 Tonne)	0-5					
2 Ton (1.8 Tonne)	50-100	0-5				
1 Ton (900 kg.)	95-100	50-100	0-5			
½ Ton (450 kg.)		-----	50-100	0-5		
1/4 Ton (220 kg.)		95-100	-----	50-100		
200 Lb. (90 kg.)			95-100	-----		
75 Lb. (34 kg.)				95-100	0-5	
25 Lb. (11 kg.)					25-75	0-5
5 Lb. (2.2 kg.)					90-100	25-75
1 Lb. (0.4 kg.)						90-100

The amount of material smaller than the smallest size listed in the table for any class of rock slope protection shall not exceed the percentage limit listed in the table determined on a weight basis. Compliance with the percentage limit shown in the table for all other sizes of the individual pieces of any class of rock slope protection shall be determined by the ratio of the number of individual pieces larger than the smallest size listed in the table for that class also pertaining to 200-1.7, "Selection of Riprap and Filter Blanket Material."

**200-1.6.3 Quality Requirements.** First paragraph, second sentence CHANGE "60 days" to "30 days".

**ADD: 200-1.7 Selection of Riprap and Filter Blanket Material:**

Table 200-1.7

Velocity Ft/Sec (Meters/Sec) (1)	Rock Class (2)	Rip Rap Thick- ness "T"	Filter Blanket Upper Layer(s) (3)			
			Option 1 Sect. 200 (4)	Option 2 Sect.400 (4)	Option 3 (5)	Lower Layer (6)
6-7 (2)	No. 3 Backing	0.6	3/16" (5 mm)	C2	D.G.	----
7-8 (2.2)	No. 2 Backing	1.0	1/4" (6 mm)	B3	D.G.	----
8-9.5 (2.6)	Facing	1.4	3/8" (9.5 mm)	----	D.G.	----
9.5-11 (3)	Light	2.0	½" (12.5 mm)	----	¾"- 1-1/2" (25mm) P.B.	----
11-13 (3.5)	220 kg (1/4 Ton)	2.7	¾" (19 mm)	----	¾"- 1-1/2" (25mm) P.B.	SAND
13-15 (4)	450 kg (½ Ton)	3.4	1" (25 mm)	----	¾"- 1-1/2" (25mm) P.B.	SAND
15-17 (4.5)	900 kg (1 Ton)	4.3	1-1/2" (37.5 mm)	----	TYPE B	SAND
17-20 (5.5)	1.8Tonne (2 Ton)	5.4	2" (50 mm)	----	TYPE B	SAND

See Section 200-1.6, "Stone for Riprap" and Table 200-1.6 (A).

Practical use of this table is limited to situations where "T" is less than inside diameter.

- (1) Average velocity in pipe or bottom velocity in energy dissipater, whichever is greater.
- (2) If desired rip rap and filter blanket class is not available, use next larger class.
- (3) Filter blanket thickness = 1' (0.3 Meter) or "T", whichever is less.
- (4) Standard Specifications for Public Works Construction.
- (5) D.G. = Disintegrated Granite, 1mm to 10mm.

P.B. = Processed Miscellaneous Base.

Type B = Type B bedding material, (minimum 75% crushed particles, 100% passing 62.5 mm (2 ½") sieve, 10% passing 1" sieve).

- (6) Sand 75% retained on #200 sieve.

**200-2.4.3 Quality Requirements.** REVISE Table 200-2.4.3 (A) for R-value to read "80 Minimum."

**SECTION 201 – CONCRETE, MORTAR, AND RELATED MATERIALS**

**201-1.1.2 Concrete Specified by Class and Alternate Class.** MODIFY Table 201-1.1.2(A) as follows:

REVISE:

Concrete Pavement (not integral with curb) 520-A-2500

To Read:

Concrete Pavement (not integral with curb) 520-C-2500

Cross Gutter and Alley Aprons) 560-C-3250

REVISE:

Curb, Integral Curb and Pavement 520-C-2500

Gutter, Walk, Alley Aprons 520-C-2500P

To Read:

Curb and Gutter (separate or combined) 520-C-2500

Walks 520-C-2500P

CHANGE concrete class for "Sidehill Surface Drainage Facilities" from "500-C-2500" to "520-C-2500".

CHANGE concrete class for "Pipe Bedding and Encasement, Anchors and Thrust Blocks, Wall Support for Pipe" from "450-C-2000<sup>2</sup>" to "480-C-2000<sup>2</sup>".

CHANGE concrete class for "Fence and Guardrail Post Foundations" from "500-C-2500" to "520-C-2500".

**201-1.1.4 Concrete Specified by Compressive Strength.** DELETE the second sentence of the first paragraph and SUBSTITUTE the following:

The concrete shall contain not less than 520 pounds of cement per cubic yard for concrete strengths of less than 3250 psi.

**201-1.2.1 Portland Cement.** First paragraph, first sentence REVISE to read as follows:

Cement to be used or furnished shall be low alkali and shall be either Type I or Type II Portland Cement conforming to ASTM C 150, or Type IP (MS) portland - pozzolan cement conforming to ASTM C 595, unless otherwise specified.

**201-1.2.3 Water.** Second paragraph REPLACE "1,000 PPM (mg/L) of sulfates" with "1,300 (mg/L) PPM of sulfates".

Third paragraph REPLACE "800 PPM (mg/L) of sulfates" with "1,300 (mg/L) PPM of sulfates."

**201-1.3.1 General.** First paragraph, REVISE to read as follows:

Aggregates and cement shall be proportioned by weight except that when using continuous mobile volumetric mixers, or when the amount of concrete required for any one contract is 10 cubic yards (8 cubic meters) or less, the materials may be measured by volume. Materials that are proportioned by volume shall be measured in containers of known capacity.

ADD the following paragraphs:

When proportioning by continuous mobile volumetric mixer, the mixing auger shall be charged by calibrated conveyer belts which are interlocked between the feeds for cement, course aggregate, and the fine aggregate.

The amount of water to be added to the mixture shall be measured into the mixing auger through a valve with a positive cut off and interlocked with the feeds for cement and aggregate.

Calibrated belt feeds shall not vary from the designated volume by more than 1% for cement, 1% for water, 1.5% for any size of aggregate, nor 1% for the total aggregate in any batch.

**201-1.3.2 Combined Aggregate Gradings.** Table 201-1.3.2(A) REPLACE Grading Class C with the following:

<u>Sieve Size</u>	<u>% Passing Sieve Class C</u>
1½" (37.5 mm)	100
1" (25 mm)	85-100
¾" (19 mm)	75-95
½" (12.5 mm)	55-85
3/8" (9.5 mm)	45-75
# 4 (4.75 mm)	35-60
# 8 (2.4 mm)	25-45
#16 (1.18 mm)	20-35
#30 (600 µm)	10-25
#50 (300 µm)	5-15
#100 (150 µm)	1-5
#200 (75 µm)	0-2

**201-1.3.3 Concrete Consistency.** Second paragraph DELETE the following:

"and shall not exceed amounts shown in the following:"

DELETE Table 201-1.3.3(A).

**201-1.4.3 Transit Mixers.** After listing of information for weigh master certificate, ADD the following:

"Transit mixed concrete may be certified by mix design number provided a copy of the mix proportions are kept on file at the plant location for a period of 4 years after the use of the mix".

**ADD: 201-1.4.5 Continuous Mobile Volumetric Mixer.** The type, capacity, and manner of operation of the mixing and transporting equipment for continuous mobile volumetric mixers shall conform to the current "Standard Specifications for Concrete Made by Continuous Mobile Volumetric Mixing ASTM C 685," and the manufacturer's recommendations.

Continuous mobile volumetric mixers shall be calibrated at least every six months or less by the Engineer, or a laboratory recognized by the Engineer. Copies of the calibration charts shall be maintained on the mobile mixer and be available to the Engineer.

Auger shall be emptied and cleaned for changes between mix designs unless changing to a concrete mixture of a lower strength and approved by the Engineer.

Moisture content of the aggregate shall not vary by more than 0.5% for coarse aggregate and 1.5% for fine aggregate in the truck.

When concrete is being placed for pavement or concrete structures, all changes in the concrete consistency shall take place in 1/4 cubic meter (cubic yard) of concrete or less.

The Engineer shall be provided with a legible delivery ticket signed by the driver certifying to the concrete mixture delivered. When mix portions have been designated for the Project and are identified by number, the Engineer may accept a legible certificate, which shall contain the following information:

- a) Name of Supplier
- b) Name of the Contractor
- c) Project Location
- d) Number of cubic yards delivered
- e) Mix designation number
- f) Maximum Slump
- g) Maximum allowable water
- h) Time and date of starting mixing

When number does not designate the mix portions, or when required by the Engineer, the certificate shall contain the following additional information:

- a) Actual weights of cement and of each size of aggregate
- b) Brand and type of cement
- c) Brand, type and amount of admixture

**ADD: 201-3.8.1 Water Stops.** Water stops to be placed in joints in concrete during construction to prevent the passage of water through them, shall be either fabricated from a plastic compound, the basic resin of which shall be polyvinyl chloride or sheet metal. Metal may be copper, lead, or zinc. The metal water stops shall be folded to a U shape longitudinally, with extensions or flanges embedded in the concrete 50 mm (2") or more,



sometimes perforated for better bond with the concrete. Sheet copper water stops shall conform to AASHO M138 or ASTM B 152; lead and zinc sheets with ASTM B 29 and ASTM B 69. Platicized-polyvinyl chloride resin water stops shall conform to ASTM D412 62T. The following are minimum physical requirements:

- |   |               |
|---|---------------|
| a) Shore durometer "A" hardness (plus or minus 5) | 68            |
| b) Tensile strength, psi                          | 1000          |
| c) Elongation, percent                            | 300           |
| d) Specific Gravity (plus or minus 0.03)          | 1.48          |
| e) Brittleness Temp. (ASTM D 736), Pass           | -22°F (-30°C) |

Prior to supplying any water stops, the Contractor shall advise the Engineer and obtain approval for the proposed product to be provided. Splicing of water stops shall be done in accordance with manufacturer's specifications and Engineer's instructions.

**201-3.9 Test Report and Certification.** First sentence, ADD the following:

"including water stops."

**ADD: 201-8 MANHOLES (MHs).**

**201-8.1 Pre-fabricated Manhole Bases.** Prefabricated Manhole Base (PMB) shall not be allowed unless otherwise shown on the Plans. When the PMB is shown on the Plans and if the MH is modified or placed at a new location because of a design change either in the vertical or horizontal position and the PMB does not meet the design criteria, the Contractor shall order a new PMB that complies with the modified alignment, location, or both. The City will compensate the Contractor for the base, restocking costs, and other related costs.

PMB may be allowed, when not shown on the Plans, if the Contractor assumes all the risk and additional costs of the MH relocation as a result of unforeseen conditions or design changes. If the MH is modified or placed at a new location because of a design change either in the vertical or horizontal position and the PMB does not meet the design criteria, the Contractor shall order a new PMB that complies with the modified alignment/location. Otherwise, the Contractor shall replace the PMB with a cast in place base at no additional cost to the City.

If the PMB channels do not have the proper slopes or configuration as shown on the plans or if the installation is not in compliance with the Contract requirements or the manufacturer's recommendations, the PMB will be rejected by the Engineer and the Contractor shall cast a new base in place at no additional cost to the City.

**201-8.4 Polymer Mortar.** The following products are acceptable for use in manhole riser joints:

<u>Material</u>	<u>Manufacturer</u>
490 Epoxy Putty	Engard Coatings, Huntington Beach, CA
Sikadur 31 Hi-Mod Gel	Sika Corporation, Santa Fe Springs, CA
Sikadur 32 Hi-Mod Gel	Sika Corporation, Santa Fe Springs, CA
CS-102 Butyl Gaskets (rope form)	Concrete Sealants, New Carlisle, OH

**201-8.5 Polyurethane Coating.** The epoxy primer and polyurethane liner shall be manufactured by the following, or equal:

- a) Zebron
- b) Sancon

The color shall be white or cream. The Contractor shall submit complete manufacturer specifications, application procedure and references for review and approval.

**201-8.6 Exterior Waterproofing for Manholes.** The coal tar emulsion shall be Kopper-Bitumastic Super Service Black, or approved equal. Application of this material shall be in accordance with the manufacturer's instructions and these specifications.

**201-8.7 Manhole and Pipeline Abandonment Material.** The backfill material to be used for the abandonment of the existing manholes shall be Controlled Low Strength Material (CLSM) in accordance with 201-6, "Controlled Low Strength Material."

### SECTION 203 – BITUMINOUS MATERIALS

**203-1.3 Test Reports and Certification.** ADD the following:

When requested by the Engineer, the Contractor shall furnish, without charge, samples of the aggregate and emulsions the Contractor proposes to incorporate into the Work. Such materials shall be tested in accordance with the test procedures as specified herein.

**ADD: 203-1.3.1 Laboratory Testing-Quality Control.** Unless certified by the City Engineering Laboratory within the past 6 months, preconstruction laboratory testing shall be as follows:

Materials shall be pre-tested in a qualified laboratory as to their suitability for use in the specified slurry. The Contractor, at its expense, shall submit to the City for its approval laboratory reports of mix designs which cover the specific materials to be used on this project. Test reports shall include samples with Latex or Polymer modifiers, and samples without modifiers. Latex modifier shall be Ultrapave 65K (Cationic), UP70 (Anionic) manufactured by Textile Rubber and Chemical Co. or equal. Latex when used shall be added at the asphalt plant at a rate of 2% minimum or as modified by the Engineer.

Specimens shall contain 50, 55, 60, 65, and 70% for type I and type II Rubberized Polymer Modified Emulsion. In each series of specimens with varying percentages of RPME, the percentage of water shall remain constant. The following data shall accompany each specimen:

1. % Aggregate
2. % Rubberized Polymer Modified Emulsion
3. % of Latex
4. % Water
5. Wet Track Abrasion test results

- a) The City will determine which specimen is best suited to its needs, based upon the content of Rubberized Polymer Modified Emulsion (RPME) and water needed to produce slurry with a maximum loss of 50 grams when subjected to a Wet Track Abrasion Test.
- b) The Contractor, at its expense, shall then mix and spread test batches of the mix design for Type I and Type II approved by the City. Batches 3-5% over and 3-5% under the approved mix design for each vehicle/mixing unit that will apply slurry for this contract.
- c) The selected slurry mix will be used to obtain field samples for extraction and wet track abrasion testing. If necessary, the mix will be adjusted until the final design mix is determined and approved by the Engineer.
- d) No change in the proportions of the final design mix will be permitted without the Engineer's approval. If the Contractor should change its source of supply for either the aggregate, or the RPME, the quality control procedures specified herein shall be repeated. Approved mixes shall be faithfully used in the performance of the Contract and deviations of more than 3% above or below the approved amount of RPME will not be allowed. The percentage of RPME is based on the dry weight of the aggregate.

**ADD: 203-1.3.2 Wet-Track Abrasion Test.** The Contractor shall cooperate with the Engineer in sampling for Wet-Track Abrasion Test. The City Engineering Lab will perform tests in accordance with Wet-Track Abrasion Test (ISSA Test Method 106, revised 1990), on file with City Engineering Lab. The selected slurry mix will be used to obtain field samples for extraction and Wet Track Abrasion Testing. If necessary, the mix shall be adjusted until the final design mix is determined and approved by the Engineer.

**203-1.6 Measurement and Payment.** ADD the following:

Unless otherwise provided for in the Bid as separate Bid item, the payment for paving asphalt shall be included in the item of Work to which its use is incidental. When paving asphalt is to be paid for as an item of Work, the unit of measurement shall be Ton.

**203-2.6 Measurement and Payment.** ADD the following:

Unless otherwise stated in the Bid, the payment for liquid asphalt shall be included in the item of Work to which its use is incidental. When liquid asphalt is to be paid for as an item of Work, the unit of measurement shall be Ton.

**203-3.6 Measurement and Payment.** ADD the following:

Unless otherwise stated in the Bid, the payment for emulsified asphalt shall be included in the item of Work to which its use is incidental. When emulsified asphalt is to be paid for as an item of Work, the unit of measurement shall be Ton.

**203-5.1 General.** First paragraph, DELETE last sentence.

**203-5.4 Mix Design.** Second Paragraph, second Sentence, DELETE "2 days" and SUBSTITUTE "4 Working Days."

**SECTION 205 - PILES**

**205-3.1 General.** Last paragraph after ASTM C 31, ADD: "and ASTM C 39."

**SECTION 206 – MISCELLANEOUS METAL ITEMS**

**ADD: 206-3 GRAY IRON CASTING:**

DELETE last and SUBSTITUTE the following:

Ductile and gray iron fittings, valves, and appurtenances directly buried in ground shall be coated in accordance with 207-9.2.4, "Lining and Coating."

**206-6.3 Chain Link Fabric.** REVISE section to read: Unless otherwise specified, chain link fabric shall conform to 206-6.3.1, "Galvanized Fabric" and/or 206-6.3.2, "Polyvinyl Chloride (PVC) Coated Fabric."

**SECTION 207 – PIPE**

**207-4.2 Design, Manufacture and Tests.** ADD the following:

For pipe size 16" and larger, minimum cement mortar lining thickness shall be 3/4" and cement mortar coating thickness shall be 1-1/4" over reinforcing rod.

Electrical continuity shall be maintained by welding or providing jumper straps all along pipe, fittings and valves in accordance with SDW-116, "BONDING STRAP FOR STEEL AND ACRW PIPE."

Minimum radius of any fabricated bend or fitting shall be 2.5 times pipe diameter.

**207-9.2.3 Fittings.** ADD the following:

Threaded Flange Ductile-Iron Extension Spools for Above Ground and Vault Installations - The pipe shall be Class 53 minimum and cut to allow for 1/2" additional length for Flange x Flange and 0.25" additional length for Flange x Pipe End.

Machine tapered pipe thread (NPT) shall comply with ANSI B1.20.1 adapted to ductile-iron pipe outside diameters.

The threaded flange shall be dimensioned in accordance with USA Standard Taper Pipe and shall be attached to the machined pipe threads. The threaded flange shall be removed from the pipe and two-part epoxy thread sealant shall be applied to the pipe threads and the flange threads. Coal tar coating shall comply with AWWA C203 and epoxy coating shall comply with AWWA C213. The threaded flange shall be re-attached to the pipe threads and shall be machine tightened. Facing and flange alignment for the threaded joints shall comply with AWWA C115.

The threaded joint and spool assembly shall be hydrostatically tested 300 psi, stamped with the manufacturer's mark indicating length, weight, and customer, and stenciled with "Tested at 300 PSI".

Certification of Compliance with all specifications shall be furnished.

**207.9.2.4 Lining and Coating.** REVISE last sentence to read:

The outside surfaces of ductile iron pipe and fittings, including valves and appurtenances for buried service shall be coated with one of the following:

- a) 24 mils minimum dry film thickness (MDFT)) liquid epoxy coating (except Coal Tar) in accordance with AWWA C-210.
- b) 20 mils MDFT Fusion Bonded Epoxy coating in accordance with AWWA C-213 and AWWA C-116.
- c) A cold applied three-part system, 80 mils petroleum Wax Tape coating in accordance with AWWA C-217
- d) 24 mils MDFT 100% solids Polyurethane coating in accordance with AWWA C-222.

Prior to coating, the iron surfaces shall be blast cleaned in accordance with the applicable National Association of Pipe Fabricators (NAPF) standard 500-03, "surface preparation standard for ductile iron pipe and fittings receiving special external coatings and/or special internal linings." The entire coated surface shall be inspected with a holiday detector in accordance with National Association of Corrosion Engineers (NACE International) standard RP0188-99, "Discontinuity (Holiday) testing of new protective coatings on conductive substrates."

**207-9.2.6 Polyethylene Encasement for External Corrosion Protection.** DELETE its entirety.

**ADD: 207-9.2.7 Epoxy Coating.** Ductile iron pipe, fittings, and valves shall be coated with 24 mils minimum dry film thickness of an approved liquid epoxy coating system conforming to AWWA C210, a heat shrink tape system conforming to AWWA C216, or a cold applied petrolatum wax tape system conforming to AWWA C217.

Field cuts and damages to the coating shall be repaired with a coating of an approved coal tar epoxy with a minimum dry film thickness of 24 mils. All foreign matter shall be removed by wire brush or sandpaper prior to the epoxy application.

Payment for the repair of the coating shall be included in the price of water main.

**ADD: 207-9.4 Corrosion Test.** At the option of the City, soil samples shall be collected at spring line of the proposed alignment, and chemically analyzed by qualified laboratory for pH, soluble chlorides and sulfate ions, resistivity, and oxidation-reduction potential based on the test methods:

- a) pH - ASTM G51
- b) Soluble Sulfate Ion - ASTM D 516-90
- c) Soluble Chloride Ion - ASTM D 512-89
- d) Resistivity - ASTM G57 (dry and wet)
- e) Oxidation-reduction Potential - ASTM D1498-93

**207-10.1 General.** ADD the following:

Design and installation of fabricated steel pipe shall conform to AWWA M-11, "Manual of Steel Pipe Design and Installation", (latest Edition at time of Bid), with the following exceptions:

- a) Steel plates used in the manufacture shall have minimum yield point strength of 33,000 psi and the design stress shall not exceed 16,500 psi.
- b) For pipe size 16" and larger, minimum cement mortar lining thickness shall be 3/4" and cement mortar coating thickness shall be one and one-quarter inches (1-1/4").
- c) Electrical continuity shall be maintained by welding or providing jumper straps all along pipe, fittings and valves in accordance with SDW -116.
- d) Minimum radius of any fabricated bend or fitting shall be 2.5 times pipe diameter.

**207-11.2.2 Coupling Bands.** MODIFY as follows:

First paragraph, third sentence, CHANGE, "... three standard culvert sheet..." TO "...one standard culvert sheet..."

First paragraph, end of fourth sentence, CHANGE, "... 4" (100mm), "TO "...8" (200mm)."

First paragraph, end of fifth sentence, DELETE, "...without prior written approval of the Engineer."

Second paragraph, DELETE in its entirety and SUBSTITUTE the following:

Water-tight joints shall be provided by use of approved sealant or gasket materials for all slope drains at grades of 20% or greater. Test for water-tight joints shall conform to the requirements of 306-1.4.6.

**207-11.3.3 Fabrication by Continuous Helical Seam.** Subparagraph b) Continuous Lock Seam Pipe, Item 3), end of first sentence, ADD the following:

"or protective coating"

**207-11.4 Repair of Damaged Galvanizing or Aluminizing.** First sentence after word, "flux" ADD a comma and the word "oxidation,".

**207-11.7 Slotted Pipe.** Fifth paragraph last sentence, DELETE the words: "64mm (2 ½ inches) or"

**207-17.1 General.** DELETE in its entirety and SUBSTITUTE the following:

This subsection applies to the requirement for unplasticized polyvinyl chloride (PVC) plastic pipe for gravity flow sewers and house connection sewers. Pipe, fittings, couplings and joints shall be in conformance with the requirements of ASTM D-3033, D-3034 or F-679, except as modified herein. The ASTM Designation, SDR, pipe stiffness and type of joint shall be specified on the plans and/or specifications. When PVC sewer pipe is specified without further qualifications the pipe shall conform to the following requirements:

- a) 4" thru 15" size pipe ASTM D-3034, SDR 35
- b) 18" thru 27" size pipe ASTM F-679
- c) Shall conform to SDS-101 and,
- d) Shall have gasketed joints.

**207-17.3.1 General.** ADD the following:

The joint approved for PVC pipe on this project is Elastomeric Gasket in accordance with 207-17.3.2, "Elastomeric Gasket Joints." The gasket shall be polyurethane or synthetic rubber with equal or greater resistance to solvency, chemical, or biological attack.

**207-18.1 General.** Add the following:

The location of HDPE pipe shall be as shown on the Plans. Pipe sizes larger than 36" shall not be allowed on this contract.

The use of HDPE pipe shall be in compliance with the State Department of Transportation (Caltrans) Standard Specifications, Sections 61 and 64, these specifications and the applicable ASTM and AASHTO standards. In the case of a discrepancy, the more restrictive requirements shall govern.

**207-18.4.1 Water-Tight Joints.** Add the following:

Pipe shall be water-tight under pressure and all conditions of expansion, contraction and settlement. Joints and plastic pipe culvert shall conform to either standard or positive joint provisions in Caltrans Standard Specifications Section 61-1.02, "Performance Requirements for Culvert and Drainage Pipe Joints," except that where sleeve joint connections are utilized, the sleeve minimum width shall be 7.75" inches, and at least 2 corrugations from each pipe to be joined are engaged by the sleeve.

Where water-tight joints are not specified, Type S corrugated polyethylene pipe shall incorporate, on each side of the joint, a closed-cell expanded rubber gasket conforming to the requirements in ASTM D1056, Grade 2A2.

**207-18.5.8 Cell Classification.** REVISE to read:

Cell classification of pipe and fittings shall conform to 207-18.2.1, "Extruded Pipe and Fittings and Blow Molded Fittings" and ASTM D 3350.

**ADD: 207-18.5.9 Unit Weight.** The pipe unit weight shall be computed as the average weight per foot of length determined from 3 test specimens, taken from each manufactured run. Each test specimen for pipes 24" in diameter and less shall be a minimum length of 2 diameters. The length of each test specimen for pipes larger than 24" in diameter shall be one diameter or a maximum of 36", whichever is less. The weight of pipe specimens shall be determined with any suitable weighing device accurate to 0.10 pound. The pipe unit weight for each individual kind and size of plastic pipe shall equal or exceed the minimum unit weight value for each individual kind and size of plastic pipe listed in Table 207-18.5.9(A).



Table 207-18.5.9(A)

Nominal Diameter (inches)	Type S (Pounds per linear foot)
12	2.7
15	4.0
18	6.0
24	10.2
30	15.0
36	18.1

**ADD: 207-18.8 References.** The Contractor shall refer to the latest editions of the reference specifications in Caltrans Standard Specifications, these specifications, AASHTOM294 (Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm Diameter), and the following:

- a) ASTM D2321: Recommendations For The Installation of Buried Thermoplastic Pipe
- b) ASTM D2584: Test Method for Ignition Loss of Cured Reinforced Resins
- c) ASTM D3839: Standard Guide for Underground Installation of Fiberglass (Glass-Fiber Reinforced Thermosetting-Resin) Pipe
- d) ASTM D1056: Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber
- e) ASTM D 3350: Standard Specification for Polyethylene Plastics Pipe and Fittings Materials

**207-20.2 Materials.** ADD the following:

CCFRPM pipe shall conform to the minimum pipe stiffness requirements contained in 207-20.5, "Chemical Resistance and Physical Testing" which is the minimum pipe stiffness value at the end of service life of 50 years, (60 years for storm drains).

**207-20.7 Pipe Acceptance or Rejection.** ADD the following:

For the purpose of these specifications, a lot is defined as 400' feet but no more than 50 sections of pipe, or fraction thereof, of one size and class manufactured on consecutive Working Days. If the 400', but no more than 50 sections of pipe are not made on consecutive Working Days, then only those made on consecutive Working Days shall be considered a lot. If an interruption in manufacturing occurs, the Engineer may permit the pipe made after the interruption to be included in the lot, provided that the interruption lasts less than 7 days and no other pipe is manufactured on that machine in the interim period. A new lot number will be assigned if any change occurs in size or spacing of reinforcing materials, in the mix, or in the curing method.

**207-20.8 Installation.** ADD before first paragraph:

Each section of pipe shall be moved or installed using approved non-metallic slings. The slings shall support each pipe section at a minimum of 2 locations in such a way that the pipe is not damaged by flexure or abrasion. The Contractor shall submit detailed drawings of slings proposed for the handling of the pipe during production, loading, unloading, and installation.

ADD the following at end of Section:

The installation depth of CCFRPM pipe shall be limited to a minimum cover of 5 feet to a maximum of 15 feet including cover, unless a special design is approved by the Engineer.

**ADD: 207-25 POLYVINYL CHLORIDE (PVC) PRESSURE PIPE.**

**207-25.1 PVC Pressure Water Pipe 4"-12".** Pipe shall conform to the requirements of AWWA C900. Milled over all (MOA) polyvinyl chloride pipe having asbestos cement pipe size 8" through 12" may be used only where a shorter than standard length is needed to make a connection to the existing water main.

Design and installation shall comply with AWWA Manual M-23, "PVC Pipe Design and Installation," with the following exceptions:

- a) Dimensions for PVC pipe shall comply with Table 2 of AWWA C900 for CI pipe equivalent OD.
- b) Pressure and SDR rating shall be Class 150 and 18, respectively, unless higher-pressure class is called out on the plans.
- c) Pipe ends shall be plain by elastomeric gasket bell or plain by plain. Coupling for plain pipe shall be furnished with 2 elastomeric gaskets. For pipe to pipe connections, solvent cement or mechanical joints shall not be accepted.
- d) Fittings shall be mechanical joints and are in accordance with AWWA C 153 and AWWA C 111. Bolt holes in the flanges of the mechanical joint fitting shall straddle the vertical centerline of the fitting. The fitting shall be cement mortar lined in accordance with AWWA C 104. The outside shall be asphalt-coated and the fitting, when assembled, shall be polyethylene-encased in accordance with the requirements of AWWA C 105. Glands shall be made of ductile iron and shall be factory-stamped. Ductile iron from which the glands are cast shall have a minimum elongation of 5%. Bolts shall be tee heads made of high-strength low-alloy steel or ductile iron in accordance with AWWA C 111.
- e) Installation of mechanical joint shall conform to Appendix A of AWWA C 111. Over stressing of bolts to compensate for poor installation shall be avoided. Bolts and nuts shall be coated with rust-preventive grease.
- f) Solvent cement joints or push-on joints will not be accepted.

**207-25.2 PVC Pressure Water Pipe 14"-36".** Pipe shall conform to the requirements of AWWA C-905.

Design shall comply with accepted standards for PVC pipe and the following enhancements and exceptions:

- a) Pipes shall carry a safety factor of 2.5. Calculations and data from the pipe manufacturer showing that the pipe conforms to the design requirements of AWWA C 900 shall be submitted to the Engineer for approval prior to ordering pipe.
- b) Dimensions for PVC water pipe shall comply with Table 2 of AWWA C 905 for CI pipe equivalent OD
- c) Minimum acceptable Pressure Rating(s) (PR) and/or Dimension Ratio(s) (DR) for pressure water pipe are shown on the plans. Pipe shall have a minimum DR of 18.
- d) Fittings shall have mechanical joints, in conformance with 207-25, "POLYVINYL CHLORIDE (PVC) PRESSURE PIPE" as revised herein. Solvent cement joints or push-on joints shall not be used.

**207-25.3 Chlorinated Poly Vinyl Chloride (CPVC).** CPVC pipes in ½" to 2" diameters manufactured by Saudi Industries for Pipes Company Limited (SIP) between March 2007 and October 2007 shall not be used for potable water on this Project unless the piping material has been clearly certified by NSF International.

**207-25.4 PIPE (SEWER).** Pipe installed as sewer main shall be Vitrified Clay Extra Strength (VCES) in accordance with 207-8, "Vitrified Clay Pipe" or Polyvinyl Chloride (PVC) in accordance with 207-17, "PVC Plastic Pipe". PVC pipe shall be SDR-35 unless otherwise designated on the plans.

Pipe and fittings for house connection sewer (laterals) shall be VCES, PVC, or Acrylonitrile-Butadiene-Styrene (ABS) solid wall pipe in accordance with 207-16, "ABS or PVC Composite Pipe."

**207-25.5 PIPE (WATER).** Asbestos cement pressure pipe (Section 207-7) shall not be acceptable. PVC pressure pipe in accordance with 207-25, POLYVINYL CHLORIDE (PVC) PRESSURE PIPE is acceptable for sizes 16" through 36" in diameter.

**ADD: 207-26 PIPE Appurtenances.**

**207-26.1 Water Services 2" (50 mm) and Smaller.** Concrete water meter boxes shall not be used for services 2" and smaller. The following shall be used for water meter boxes:

Polymer Concrete Water Meter Boxes: Boxes shall be makes and models which have been approved by the City. Enclosures shall be manufactured from a reinforced polymer concrete and fiberglass reinforced polyester with all top surfaces being polymer concrete in accordance with City of San Diego Standard Drawings SDW-134, "Polymer Concrete with Layer of Woven Fiberglass Water Meter Box for 1" Water Service", SDW-135, "Polymer Concrete with Layer of Woven Fiberglass Water Meter Box for 2" Water Service" and SDW-136 "Meter Box Cover with Reader Lid". The top surface of the cover shall have a minimum static coefficient of friction of 0.05. All boxes and covers to be installed in traffic areas shall be designed for A-16 heavy traffic loading in accordance with ASTM-C857. Boxes and covers to be installed in non-traffic areas shall have cast iron reader lids that open less than 90 degrees and be designed for A-10 traffic loading in accordance with ASTM-C857. Traffic areas are defined as any location in which vehicular traffic is evident or highly likely under

normal conditions. Non-traffic areas are locations with no vehicular traffic. Covers shall have a logo reading "SDWD WATER" as well as the manufacturer's name or logo cast in the polymer concrete surface. A cover and lid selected at random shall be tested. The cover and lid shall support without failure a total vertical load of at least 1,000 pounds, when supported in a horizontal position in the meter box. The load shall be applied to the center of the lid by a cylindrical pin, 1.952-inches in diameter, supported on a 2-thick rubber pad.

Unless provided for as a separate bid item, payment for Polymer Concrete Box shall be included in the water service bid item.

Corporation Stops, Curb Stops, and other Bronze Water Service Fittings: Bronze water service fittings including stops shall be cast of high grade bronze conforming to the requirements of ASTM Standard Specification B 62. The Engineer shall have the right to take one or more from each lot of stops and/or fittings and have it analyzed. Fittings shall be of makes and models, which have been tested and approved by the City.

Copper Tube: Copper tube shall conform to the requirements of ASTM Standard Specification No. B 88, for Seamless Copper Water Tube, Type K soft. It shall be of the size indicated on the drawings and/or called for in the specifications.

Polyethylene Pipe: Polyethylene (PE) plastic pipe for water services shall be PE 3306 conforming to the provisions of ASTM Designation D 2239. The pipe shall be extruded from PE plastic compound of Type III, Class "C", Category 3, Grade P33 conforming to ASTM Designation D 1248.

The pipe shall be iron pipe size having a standard thermoplastic pipe dimension ratio of 7 (SDR 7), shall have a pressure rating of not less than 160 psi (1.1 megapascal) for water at 23°C (73.5°F), shall be approved by the National Sanitation Foundation for use in transporting potable water, and shall be approved by the City.

Fittings for PE pipe shall be the rubber ring compression type and shall be made of B-62 bronze. Fittings shall be of make and model approved by the City.

Insulation: Copper services which are attached to metallic water mains shall be insulated as follows: The corporation stop and the copper tube and fittings within a minimum distance of 3' (0.9m) of the main shall be wrapped tightly with an approved polyvinyl chloride pipe coating tape combined with the application of a liquid adhesive primer or finish coating recommended for the purpose by the manufacturer of the tape.

The tape and adhesive or coating shall be applied in the manner and sequence recommended by the manufacturer. Prior to application of insulation, the tubing, fittings, corporation stop and the surface of the main within 4' (1.2 m) of the stop shall be thoroughly cleaned of all dirt and grease, and dried. Copper tube shall be wrapped with tape two inches 2" (50 mm) or less in width lapped not less than 3/8" (9.5 mm).

The tape shall be not less than 0.25 mm (10 mils) in thickness and shall have the following characteristics:

Tensile strength	3,500 to 4,200 psi (24 to 30 megapascal)
Tear resistance	High
Elongation at break	300% to 350%
Moisture absorption	0.03%
Dielectric strength	750-1,000 volts/mil
Insulation resistance	200,000

Polyvinyl Chloride Pipe 37.5 mm and 50 mm (1-1/2 inch and 2 inch) only: Polyvinyl chloride (PVC) pipe for water services shall meet the requirements of ASTM D 2241 plastic pipe (SDR-PR) and Class T, or ASTM D 1785 plastic pipe (schedule 40, 80, 120). The pipe shall be extruded from polyvinyl chloride compounds, meeting the requirements of ASTM D 1784.

The pipe shall be of the type and compound listed below:

<u>Standard</u>	<u>Pipe Description</u>	<u>Compound</u>
ASTM D 2241	SDR = 17	PVC 1120 or 1220
ASTM D 1785	PR = 530	
ASTM D 1785	Schedule 40	PVC 1120 or 1220

Fittings for polyvinyl chloride pipe shall be socket solvent weld type meeting the requirements of ASTM D2466. The welding solvent shall meet the requirements of ASTM D 2564.

Polyvinyl chloride pipe, fittings and solvents shall be approved by the National Sanitation Foundation for use in transporting potable water and shall be supplied by manufacturers approved by the City.

**207-26.2 Fire Hydrants.** Fire hydrants furnished in accordance with these specifications shall conform to the provisions of AWWA C 503 for "Wet Barrel Fire Hydrants", and to the modifications and supplements herein.

Valve seats and stem guides may be threaded into or cast into the hydrant body or may be secured to the body by means of a lock nut.

Unless otherwise specified, fire hydrants for residential areas shall have one 4" port and one 2.5" port and fire hydrants for commercial and industrial areas shall have two 4" ports and one 2.5" port.

Hydrant valves shall open counter clockwise.

Threads for pumper and hose nozzles shall conform to the American National Standard adopted by the American Insurance Association (formerly the National Board of Fire Underwriters) and the National Fire Protection Association published in pamphlet No. 194, Fire Hose Couplings, by N.F.P.A. in 1968.

Outer end of all hose coupling threads shall be terminated by the blunt start of "Higbee Cut" on full thread (to avoid crossing thread).

Hydrant body base flange shall be drilled in a 237.5 mm (9.5") bolt circle with six bolt holes, 22 mm (7/8") in diameter oriented to the center of the pumper connection.

Hydrant bodies shall be solid bronze.

Valve stems shall have a pentagon end and shall have a short radius of 13 mm (33/64-inch) to center of flat sides.

Hydrant components made from brass or bronze shall be of a grade containing not more than 16 percent zinc and not more than 2% aluminum in accordance with Section 2.6.4 of the AWWA Standard C 503 for waters with specific conductance exceeding 350 micro Mho per am.

Exterior surfaces shall be painted with a zinc chromate primer of the same color as the finished coat. The finished coat shall be of chrome yellow enamel meeting the requirement of Federal Specification TT-C-595, Color No. 13538.

A.B.S. plastic fire hydrant caps are acceptable replacements for bronze or cast iron caps, when approved by the City.

Removal of existing Fire Hydrant and all appurtenant work shall be included in the Bid item for Fire Hydrant.

**207-26.3 Gate Valves.** Gate valves shall conform to the provisions of AWWA Specification C 500 as modified herein, except that valves 3" (75 mm) and under shall be all bronze; conforming to ASTM B 62.

Valves shall have bottom or side wedging double discs, parallel seats, all bronze internal working parts, either "O" rings or stuffing box stem seals, and two inch square operating nut, and shall open by turning the stem counter-clockwise. Ends shall be as specified, designed for use with the connecting pipe. Components made from brass or bronze shall be of a grade containing not more than 16% zinc and not more than 2% aluminum in accordance with 5.5 of the AWWA Standard C 500 for waters with specific conductance exceeding 350 micro Mho per am.

Valves 16 inch (400 mm) and larger shall be designed for horizontal mounting, with 3 inch (75 mm) by-passes and totally enclosed gear case. Integral or extended gear cases are acceptable.

External bolts and nuts for valve fittings shall be hexagonal head machine bolts and hexagonal nuts conforming to ASTM 307, Grade B or SAE Grade 2. Bolt threads shall be lubricated with graphite and oil prior to installation.

By-pass connections for all gate valves over 12" (300 mm) shall be cast into the valve and shall not obstruct the water way to the by-pass. Bronze by-pass valves shall be wheel operated.

Only gate, resilient-seated gate and butterfly valves are allowed. Valves used with PVC pipe shall have mechanical joint ends.

Ductile and gray cast iron fittings, valves, and appurtenances directly buried in the ground shall be coated with a liquid epoxy-coated system in accordance with AWWA C-210 or a cold applied petroleum wax tape system in accordance with AWWA C-217.

Sixteen-inch gate valves shall have a 3" bypass when the maximum operating pressure is 80 psi or greater; larger gate valves shall have bypasses in accordance with AWWA C-500.

Painting of exposed surface of valve well caps shall be in accordance with the San Diego Regional Standard Drawing WV-03 "Gate Well Cap Installation, for Valves 4" (100mm) and Larger."

Types of joints for fittings are called out on plans in the following order: back, ahead, left, right.

Ductile and gray cast iron fittings, valves, and appurtenances directly buried in the ground shall be coated with a liquid epoxy-coated system in accordance with AWWA C-210 or a cold applied petroleum wax tape system in accordance with AWWA C-217.

Sixteen-inch gate valves shall have a 3" bypass when the maximum operating pressure is 80 psi or greater; larger gate valves shall have bypasses in accordance with AWWA C-500.

Valve key extensions shall be installed for butterfly valves and gate valves when top of gate valve nut is 25" or more below ground or pavement surface. See City of San Diego Standard Drawing SDW-109 "Valve Key Extensions."

Types of joints for fittings are called out on Plans in the following order: back, ahead, left, right.

**207-26.4 Butterfly Valves.** Butterfly valves and operators shall conform to the provisions of AWWA C 504, "Standard for Rubber-Seated Butterfly Valves", as modified and supplemented herein.

Valves and operators shall be Class 150B, totally enclosed for direct burial in the ground without a vault. Valves and operators shall be designed for installation in a nearly horizontal pipeline with the disc shaft horizontal and the operating shaft vertical. Valves shall be either short body, or long body, with ends as specified. Flanged ends shall conform to AWWA C 207.

The operator shall be manual with a 2" (50 mm) square operating nut, and shall open the valve when turned counter-clockwise. The number of turns required to fully close the valve from a fully open position is shown in the table below for valve diameter 6" (150 mm) to 48" (1200 mm).

Valve Diameter inch (mm)	Minimum Number of Turns to Close
6 (150)	15
8 (200)	18
10 (250)	24
12 (300)	26
14 (350)	28
16 (400)	30
18 (450)	32
20 (500)	36
24 (600)	42
30 (750)	48
36 (900)	56
42 (1050)	64
48 (1200)	72

The operator, and any other parts requiring lubrication, shall be fully lubricated at the factory and shall require no additional lubrication for the life of the valve.



The valve disc may be of cast iron, alloy cast iron, stainless steel, monel, bronze, or ductile iron. The metal seating surfaces which meet the rubber seat shall be of stainless steel or bronze.

Bolts and nuts for valve end flanges shall be hexagonal head bolts and hexagonal nuts conforming to ASTM 307, Grade B or SAE Grade 2. Bolt threads shall be lubricated with graphite or oil prior to installation.

Spool type rubber liners covering the entire inner surface of the valve body will not be accepted.

Prior to the installation of working parts, all internal steel or cast iron surfaces of valves, except finish or bearing surfaces, shall be coated with approved epoxy in accordance with AWWA C 550, "Protective Interim Coatings for Valve and Hydrants." The minimum thickness of the coatings, when dry, shall be 10 mils (0.25 mm) when measured by an electric or magnetic thickness gauge and shall be applied in accordance with the manufacturer's recommendations. The epoxy surface shall be tested with an approved holiday detector.

**207-26.4.1 Class 250B Butterfly Valves.** This subsection applies to 16" (400 mm) through 1350 54-inch (mm) Class 250B butterfly valves.

Butterfly valves shall conform to the requirements of AWWA C504 for Class 250B service in terms of performance criteria. Class 250B Butterfly valves shall have flanged ends, be manually operated, tight closing, and have rubber seats. Valves shall be bubble-tight at the rated pressure with flow in either direction, and shall be satisfactory for applications involving throttling service and/or frequent operation after long periods of inactivity. Valves and valve operators shall be suitable for buried service. Valves and valve operators shall comply with these specifications, other accepted standards for butterfly valves, and the following enhancements and exceptions:

- a) Valve Bodies shall be short and constructed of cast iron conforming to ASTM A 126 Class B. Flanges shall be flat-faced and flange drilling shall be in accordance with ANSI B16.1, Class 125 or Class 250, as required for the design pressure. On valves 30" (750 mm) and larger the valve port diameter shall not reduce more than a 1.5" (37.5 mm) of nominal diameter. Flow direction shall be indicated on the valve body. The use of stops or lugs cast integrally with or mechanically secured to the body for limiting disc travel shall not be acceptable.
- b) Valve Disc shall have no external ribs transverse to the flow of water through the valve. The disc shall not have any hollow chambers that can entrap water. The disc shall be made from cast iron ASTM A 126 Class B or ductile iron ASTM A 536. The disc shall be furnished with a nickel-chrome or stainless steel type 316 seating edge to mate with the rubber seat.
- c) The Valve Seat shall be attached to the valve body. Retaining rings, clamps, screws and bolts attaching the rubber seat to the valve body shall be fabricated from stainless steel type 316. For valves 24 inch (600 mm) and larger, valve seats shall be field adjustable around the 360 degree circumference and replaceable without dismantling the operator, disc or shaft and without removing the valve from the pipeline. The valve manufacturer shall certify the rubber seat is field replaceable as

specified above. Spool-type rubber liners covering the entire surface of the valve body and extending over any portion of the flange faces will not be acceptable. Valves employing the use of snap rings to retain the rubber seat will not be acceptable.

- d) Rubber for valve seats shall conform to the applicable provisions of AWWA C 504.
- e) Valve shafts shall be stainless steel ASTM A 564 Type 630 Condition H-1100.
- f) The valve/disc connection shall be made through the use of on-center taper pins. The taper pins shall be of the same material as the valve shaft.
- g) Shaft Seals shall be standard split V packing and be provided where the shaft Projects through the valve body. Shaft seals shall be of design allowing replacement without removing the valve shaft.
- h) Valve Bearings shall be sleeve type that is corrosion resistant and self-lubricating. Thrust bearings shall be provided in accordance with the governing standard. Thrust bearings, which are exposed to water and consist of a metal bearing surface in rubbing contact with an opposing metal bearing surface, shall not be acceptable.
- i) Valve Operator shall be fully grease packed and have stops in the open/closed position. The operator shall have a mechanical stop, which will withstand an input torque of 450 ft lbs. (610 Newton-meter), against the stop. The traveling nut shall engage alignment grooves in the housing. The operator shall have a built in packing leak bypass to eliminate possible leakage into the operator housing. The operator shall be designed to hold the valve in any intermediate position between fully open and fully closed without creeping or fluttering. The operator shall be sized to provide adequate torque to operate the valve on which it is mounted at the full pressure rating of the valve. Operators shall meet minimum requirements for AWWA C 504.
- j) Valve Operator shall be mounted on the valve at the valve manufacturer's facility. The valve manufacturer shall insure proper operator sizing and satisfactorily test the operator and valve assembly prior to shipment to the Site.
- k) Valves shall be hydrostatic and leak tested. The leak test shall be performed in both directions at a differential pressure of 250 psi (1.7 Megapascal) with the disc in a closed position. In a slightly open position, internal hydrostatic pressure equal to 500 psi (3.45 Megapascal) shall be applied to the inside of the valve body for five minutes. Proof of a design cycle test in accordance with AWWA C 504 Section 5.2.4.3 shall be submitted before installation.

**ADD: 207-26.5 Plug Valves.** Class 250 valves, 16" or larger shall be plug valves. This grouping includes cone valves, ball valves and eccentric plug valves.

**ADD: 207-26.6 Payment.** The price bid for Valves shall be in accordance with 2-6, "Work to Be Done."

**ADD: 207-27 APPROVED MATERIALS LIST (AML).** The material, including pipe, fittings, valves and appurtenances, shall be in accordance with materials listed in the current City

AML. The AML is available at the Engineering and Capital Projects Department, Design Division.

Materials not on the list shall be submitted to the Engineer for approval prior to delivery to Site. The decision of the City as to acceptability of any substitute material shall be final.

### **SECTION 208 – PIPE JOINT TYPES AND MATERIALS**

**208-2.1 General.** DELETE in its entirety and SUBSTITUTE the following: Joints approved for Vitrified Clay pipe are Type “G” joints for socket and spigot pipe, and Type “D” joints for plain end pipe. The circular sleeve of the Type “D” joint shall be polyurethane or a synthetic rubber with equal or greater resistance to solvency, chemical or biological attack.

### **SECTION 209 – STREET LIGHTING AND TRAFFIC SIGNAL MATERIALS**

DELETE this section in its entirety and SUBSTITUTE with the “1999 Standard Special Provisions for Signals, Lighting, and Electrical Systems of The City of San Diego.”

### **SECTION 210 – PAINT AND PROTECTIVE COATINGS**

**210-1.6.1 General:** ADD the following:

Crosswalk lines, limit lines, and pavement legends (except within a bike lane) shall be thermoplastic in accordance with 210-1.6.2, “Thermoplastic Paint, State Specifications.”

**210-2.3.5 Shop-Welded Joints.** ADD the following:

Liner for pipes 15-inches or larger in diameter shall be shop-welded by lapping a minimum of ½ inch and fusing the sheets together by high frequency dielectric fusion, or other electric fusion process as approved by the Engineer.

**ADD: 210-6 Epoxy Linings.**

**210-6.1 General.** Epoxy linings shall be 100% solids, solvent-free, and suitable for the use for which it is specified.

**210-6.2 Properties.** Epoxy linings for structures, manholes and pipes shall have the minimum properties as noted in Table 210-6.2(A) when tested at 25°C ± 3°C (77°F ± 5°F).

TABLE 210-6.2(A)

Property	Initial <sup>1</sup>	Exposure <sup>1</sup>
Tensile Strength, ASTM D 638	7,500 psi	90% of initial
Elongation at Break, %, ASTM D 638	1.5	1.5
Hardness, Shore D, Durometer ASTM D 2240	85	N/A
Wear Resistance, mg. wt. loss, ASTM D 4060, Taber abrasion, CS-17	115	N/A
Adhesive Strength, mode of failure ASTM D 4541, epoxy to concrete	Concrete	Concrete
Weight Change	--	± 1.5%

<sup>1</sup> For 112 days in chemical solutions listed in 210-2.3.3, "Chemical Resistance Test (Pickle Jar Test)". Above values are minimum required except for hardness and weight, which is the maximum permissible gain or loss in weight.

**SECTION 211 – SOILS AND AGGREGATE TESTS**

**211-1.1 Laboratory Maximum Density.** REVISE section with respect to the methods used to read as follows:

Compaction tests will be performed in accordance with ASTM D 1557, or Calif. Test Method No. 216.

**211-1.2 Field Density.** DELETE in its entirety and SUBSTITUTE the following:

Field density of soil shall be by ASTM Methods D 1556 (Sand Cone), D 2922 (Nuclear Gauge), or California Test Methods 216 (Sand Cone) or 231 (Nuclear Gauge).

The minimum test whole volume shall be 0.10 cubic foot. A test hole 6-½" wide (Figure 1, ASTM D 1557) by 5" deep equals 0.096 cubic feet. If the layer of soil is less than 5" deep, the full depth of the layer shall be tested.

**SECTION 212 – LANDSCAPE AND IRRIGATION MATERIALS**

**212-1.1.1 General.** First sentence, REVISE to read as follows:

Topsoil shall be designated as Class A (imported), Class B (selected), Class C (unclassified) or Class D (baseball infield) as specified herein.

**212-1.1.2 Class "A" Topsoil.** Second paragraph, third sentence CHANGE "1-inch (25 mm)" to read "1/2-inch (12.5 mm)".

Third paragraph; REVISE subsections 2) and 3) to read as follows:

- 2) Permeability Rate
- 3) Agricultural Suitability

REVISE section to read as follows:

The topsoil shall be suitable to sustain the growth of the plants specified, and shall comply with the following requirements:

- a) pH - 6.0 minimum to 7.5 maximum
- b) ECo - Zero to three maximum (electrical conductivity)
- c) ESP - Zero to twelve maximum (exchangeable sodium percentage)

**212-1.1.4 Class "C" Topsoil.** ADD the following:

The composition of amended soils shall be as follows:

- a) To the non-amended soils uniformly add 20% to 25% of blended organic materials.
- b) The organic material shall be composed of wood products, manure, and other organic composts in accordance with 212-1.2, "Soil Fertilizing and Conditioning Materials."

Any amendments which shall be added to the topsoil to meet the requirements of class "A" in accordance with this section shall be uniformly blended through a mixer (pug mill) prior to delivery to the Site.

**ADD: 212-1.1.5 Class "D" Topsoil.** Class "D" topsoil is defined as topsoil designated for use in baseball infield areas shown on the plans. Class "D" topsoil shall meet the following requirements.

<u>Sieve Size</u>	<u>% Passing Sieve</u>
4.75 mm (No. 4)	100
2.36 mm (No. 8)	90 - 100
1.18 mm (No. 16)	85 - 95
600 µm (No. 30)	65 - 85
300 µm (No. 50)	35 - 55
150 µm (No. 100)	20 - 35
75 µm (No. 200)	10 - 25
Sand Equivalent	15 - 25
pH (7.2 Neutral)	6 - 8.5
Percent Clay	10 - 15

**212-1.2.1 General.** Second paragraph; DELETE the words "when required by the Engineer".

**212-1.2.2 Manure.** First sentence, REVISE to read as follows:

"Manure shall be the by-product of yard fed cattle or poultry guano free of weed seed, straw or other inert material, and aged at least 3 months"

**212-1.2.5 Mulch.** Fifth and sixth paragraphs, REVISE to read as follows:

- d) Type 4 Mulch (peat), shall be brown compressed sphagnum (pH=4.2) or hypnum (pH=7.6)."
- e) Type 5 Mulch (fir or redwood bark chips), shall be fir or redwood bark chips in the gradation specified."

ADD the following paragraphs:

- g) Type 7 Mulch (wood chips), shall be wood chips in the size and type specified.
- h) Type 8 Mulch (rock or gravel) shall be rock or gravel in the size specified.
- i) Type 9 Mulch (wood fiber), clean, natural non-recycled wood fiber processed to contain no germination or growth inhibiting factors, using nontoxic dye to facilitate metering of materials, manufactured in such a manner that after addition and agitation in slurry tanks with fertilizer, seed, water, and other approved additives, fibers in material will become uniformly suspended forming a homogeneous slurry that when hydraulically sprayed on ground, forms a blotter like ground cover impregnated uniformly with seed; which after application, will allow moisture, rainfall to percolate to underlying soil. Suppliers shall certify that their product meets all foregoing requirements based on testing.
- j) Type 10 Mulch (stabilizing emulsion), stabilizing emulsion shall be a concentrated liquid chemical that forms a plastic film upon drying and allows water and air to penetrate. The films shall be non-flammable and shall have an effective life of at least 1year.  
  
Stabilizing emulsion shall be nontoxic to plant or animal life and nonstaining to concrete or painted surfaces. In the cured state, the stabilizing emulsion shall not be re-emulsifiable. The material shall be registered with and licensed by the State Department of Food and Agriculture, as an "auxiliary soil chemical".
- k) Type 11 mulch (shredded redwood or cedar bark), shall be either redwood or incense cedar bark, which knits in a manner to minimize sloughing, floating or being kicked away.

**ADD: 212-1.2.6 Inorganic Soil Amendments.**

Iron Sulfate. Iron sulfate shall be ferric or ferrous sulfate in pelleted or granular forms containing not less than 18% metallic iron. It shall conform to the Agricultural Code of the State.

Gypsum. Gypsum shall be commercially processed and packaged.  $\text{CaSO}_4 - 2\text{H}_2\text{O}$ , with a minimum 80% grade containing 14% minimum combined sulfur.

**212-1.3 Seed.** Second paragraph, REVISE to read as follows:

Seed used for lawn, erosion control, or other planting specified on the plans or listed in the specifications, shall be furnished in labeled and sealed standard containers, with duplicate signed copies of a statement from the Supplier, certifying that each container of seed delivered is fully labeled in accordance with the California State Agricultural Code, stating certified percent of purity and germination. Seed, which has become wet, moldy or

otherwise, damaged in transit or storage will not be accepted. Seed shall be certified to conform to the specified purity and germination.

**212-1.4.1 General.** First paragraph, REVISE to read as follows:

- a) Plants shall be inspected and approved by the Engineer prior to planting.
- b) Second paragraph, DELETE second sentence.
- c) Third paragraph, to read as follows:
- d) No pruning shall be done prior to inspection at the Nursery.

**212-1.4.4 Flatted Plants.** CHANGE the words "flats" to "flat".

**212-1.4.5 Sod and Stolons (turf grass).** ADD the following:

Sod shall be fully mature, well maintained, free of all other grasses or weeds, and shall be evenly cut with a sod cutting machine to the thickness specified on the plans or in the Special Provisions. The material shall be from the same growing ground and delivered to the Site in prime condition.

**212-1.4.6 Cuttings.** REVISE section to read as follows:

Cuttings shall be fresh stock cut with a sharp hand tool from the stem tips of healthy vigorous plants of the species specified.

**ADD: 212-1.4.7 Vines.** Vines shall be of the specified type and size selected from high quality well-shaped nursery stock.

**212-1.5.3 Tree Stakes.** First and second paragraphs, REVISE to read as follows:

The type of tree stake and length shall be as designated on the plans or in the Special Provisions. Guy wire shall be No. 12 BWG zinc-coated iron. Tie material shall have minimum tensile strength of 500 pounds.

**ADD: 212-1.6.1 Jute.** Jute matting shall be of open weave, with approximately 1" square mesh. It shall be manufactured from loosely twisted jute yarn varying in thickness no more than half its normal diameter.

Matting shall be made smolder resistant by treatment with chemicals, which are non-leaching and non-toxic to vegetation. An identification mark to differentiate it from untreated jute cloth shall be present.

**ADD: 212-1.6.2 Excelsior.** Excelsior blanket shall consist of a cured wood excelsior mat. Fibers shall be evenly distributed over the entire area of matting; 80% shall be at least 6 inches (150 mm) long with consistent thickness. The topside of the matting shall be covered with 2"x1" (50 mm x 25 mm) biodegradable extruded plastic mesh. The blanket shall be made smolder resistant without chemical additives.

**ADD: 212-1.6.3 Staples.** Staples for erosion control matting shall be 11-gage steel wire, bent in a "U" shape with 6" (150 mm) minimum length.

**212-2.1.3 Plastic Pipe for Use with Solvent Weld Socket or Threaded Fittings.** Second and third paragraphs, REVISE to read as follows:

Class 200 pipe shall be used for installation on the discharge side of control valves and Schedule 40 or Class 315 pipe shall be used for continuously pressurized pipe on the supply side of control valves. Schedule 80 pipe only, shall be supplied for continuously pressurized



pipe on the supply side of control valves, and Schedule 40 pipe may be used for non-pressure pipe, when threaded joints are specified or otherwise permitted by the Engineer.

Fittings and couplings for plastic pipe shall be threaded or slipfitting tapered socket solvent weld type. Threaded female adapters shall be provided with socket pipe for connections to threaded pipe. Plastic pipefitting and coupling shall be PVC I or PVC I/II material. The type of plastic material and schedule size shall be indicated on each fitting or coupling. Fittings and couplings shall comply with the following specifications:

SOCKET FITTING

Schedule 40 ASTM D 2466

Schedule 80 ASTM D 2467

THREADED FITTINGS

Schedule 40 ASTM D 2464

Schedule 80 ASTM D 2464

**212-2.2.4 Remote Control Valves.** REVISE section to read as follows:

Remote control valves shall be electrically or hydraulically operated. Unless otherwise specified, they shall be brass or bronze, with accurately machined valve seat surfaces, equipped with flow control adjustment and capability for manual operation. They shall be readily disassembled for servicing.”

**212-2.2.6 Quick Coupling Valves and Assemblies.** REVISE section to read as follows:

Quick coupling valves shall be brass or bronze with built-in flow control and self-closing valve, and supplied in one-inch size unless otherwise specified.

**212-2.2.7 Valve Boxes.** ADD the following:

Covers may be cast iron with locking device, green vinyl clad.

**212-2.4 Sprinkler Equipment.** First paragraph, DELETE second sentence.

Third paragraph, REVISE to read as follows:

Fixed heads, shrubbery heads and bubbler heads shall have adjustable radius control.

**212-3.2.1 Conduit.** REVISE section to read as follows:

Conduit shall be UL approved galvanized rigid steel and UL approved heavy wall polyvinyl chloride (PVC Sch-40).

**212-3.2.2 Conductors.** REVISE section to read as follows:

“Line voltage conductors shall be supplied in the sizes and types shown on the plan and shall be solid copper, THW, 600-volt insulation rating, conforming to the applicable provisions of ASTM D 734. Low voltage control conductors shall be Type UF, solid copper and supplied in the sizes shown on the plan or in accordance with the control equipment manufacturer's recommendation, and shall be UL approved for direct burial installation.”

### ADD: SECTION 215 – PRIVATE SEWER PUMPS

**215-1 GENERAL.** Private pumping systems shall be installed in compliance with the applicable state and local codes.

**215-1.1 Shop and Working Drawings.** The Contractor shall submit Working Drawings and Shop Drawings detailing the equipment to be furnished including dimensional data and materials of construction in accordance with 2-5.3, "Submittals." The Working Drawings shall include a plan and profile showing location of the private pump, alarm panel, and point of connection to the existing building plumbing.

**215-1.2 Manufacturer.** The equipment specified shall be a product of a manufacturer experienced in the design and manufacture of grinder pumps for specific use in low pressure sewage systems. The Contractor shall submit detailed installation and user instructions for the pump system and evidence of an established service program including complete parts and services manuals and continuous inventory of grinder pump replacement parts from the manufacturer. The Contractor shall provide a reference and contact list from three of the manufacturer's largest grinder pump installations.

**215-1.3 Operating Conditions.** The pumps shall be capable of delivering 15 GPM against the rated total dynamic head specified in the Contract Documents and 9 GPM against a rated total dynamic head of 138' (60 PSIG). The pump(s) shall be capable of operating at negative total dynamic head without overloading the motor(s). Under no conditions shall in-line pipe or valve installation be allowed to create a false apparent head.

**215-1.4 Warranties.** Warranty period for the pump system(s) commences on the NOC date. The Contractor shall provide the private property owner(s) with a 5 year manufacturer's warranty for the pump system(s) and accessories, panel, and redundant check valve. The manufacturer's warranty shall guarantee that the pump system(s) and accessories are free from defects in workmanship and materials. Warranties available on pipe or other materials shall be provided by the Contractor to the private property owner(s).

**215-1.5 Private Pump System.** The Contractor shall furnish and install complete factory-built and tested grinder pump station(s), each packaged into a single complete unit consisting of grinder pump(s) suitably mounted in a basin constructed of high density polyethylene (HDPE), electrical quick disconnect (NEMA 6), pump removal system, shut-off valve, anti-siphon valve, and check valve assembled within the basin, electrical alarm/disconnect panel, and all necessary internal wiring and controls at the locations shown on the Plans. For ease of serviceability, pump motor/grinder units shall be of like type and horsepower throughout the system.

The pump shall be a custom designed, integral, vertical rotor, motor driven, solids handling pump of the progressing cavity type with a single mechanical seal. The rotor shall be through-hardened, highly polished, precipitation hardened stainless steel. The stator shall be of a specifically compounded ethylene propylene synthetic elastomer. The material shall be suited for domestic waste water service. The physical properties of the pump shall include high tear and abrasion resistance, grease resistance, water and detergent resistance, temperature stability, good aging properties, and outstanding wear resistance.

TABLE 215-2.1 (A) - PUMP SIZING

Depth of existing sewer plumbing at pump (from building/dwelling)	Grinder Pump Model Manufactured by Environment One Corporation (518-348-6161) Or Equal
00-21 inches	2010-61
22-37 inches	2010-74
38-56 inches	2010-93

The unit shall be supplied with a 32' power/alarm cable and an alarm/disconnect panel, described herein. The Contractor shall order inlet grommet to accept 4" SDR-35 pipe. The Contractor shall provide an adaptor from 1.25" outlet pipe to the proposed sewer lateral.

**215-1.5.1 Grinder.** The grinder shall be placed immediately below the pumping elements and shall be direct-driven by a single, one-piece stainless steel motor shaft. The grinder impeller assembly shall be securely fastened to the pump motor shaft. The grinder shall be of the rotating type with a stationary hardened and ground stainless steel shredding ring spaced in accurate close annular alignment with the driven impeller assembly, which shall carry two hardened type 400 series stainless steel cutter bars.

This assembly shall be dynamically balanced and operate without objectionable noise or vibration over the entire range of recommended operating pressures. The grinder shall be constructed as to eliminate clogging and jamming under all normal operating conditions including starting. Sufficient vortex action shall be created to scour tank free of deposits or sludge banks which would impair the operation of the pump. These requirements shall be accomplished by the following, in conjunction with the pump:

- a) The grinder shall be positioned for solids to be fed in an upward flow direction.
- b) The inlet shroud shall have a diameter no less than 5 inches.
- c) At maximum flow the average inlet velocity shall not exceed 0.2 feet per second.
- d) The impeller mechanism shall rotate at a nominal speed of no greater than 1,800 RPM.
- e) The grinder shall be capable of reducing all components in normal domestic sewage, including a reasonable amount of foreign objects, such as paper, wood, plastic, glass, rubber and the like, to finely-divided particles which will pass freely through the passages of the pump and the 1.25" diameter s/s piping.

**215-1.5.2 Electric Motor.** As a maximum, the motor shall be a 1 HP, 1725 RPM, 240 Volt 60 Hertz, 1 Phase, capacitor start, ball bearing, squirrel cage induction type with a low starting current not to exceed 30 amperes and high starting torque of 8.4 foot-pounds. Inherent protection against running overloads or locked rotor conditions for the pump motor shall be provided by the use of an automatic-reset, integral thermal overload protector incorporated into the motor. This motor protector combination shall have been specifically investigated and listed by Underwriters Laboratories, Inc., for the application.

**215-1.5.3 Mechanical Seal.** The core shall be provided with a mechanical shaft seal to prevent leakage between the motor and pump. The seal shall have a stationary ceramic seat

and carbon rotating surface with faces precision lapped and held in position by a stainless steel spring.

**215-1.5.4 Tank and Integral Access-Way.** The tank shall be made of high density polyethylene (Model 2010), with a melt index of 2.0 grams/10 minutes or lower to assure high environment stress cracking resistance. Corrugate sections are to be made of a double wall construction with the internal wall being generally smooth to promote scouring. Corrugations of outside wall are to be minimum amplitude of 1.5" to provide necessary transverse stiffness. Any incidental sections of a single wall construction are to be a minimum 0.25" thick. Seams created during tank construction are to be thermally welded and factory tested for leak tightness. Tank wall and bottom shall withstand the pressure exerted by saturated soil loading at maximum burial depth. Station components shall function normally when exposed to maximum external soil and hydrostatic pressure.

The tank shall be furnished with one EPDM grommet (SDR 35 or SDR 40) fitting to accept a 4.50" OD DWV pipe.

The access-way shall be an integral extension of the wet well assembly and include a lockable cover assembly providing low profile mounting and watertight capability. Access-way design and construction shall facilitate field adjustment of station height in increments of 4" inches or less without the use of any adhesives or sealants requiring cure time before installation can be completed.

The station shall have all necessary penetrations molded in and factory sealed. No field penetrations shall be acceptable.

Discharge piping shall be constructed of 304 Series Stainless Steel and terminate outside the access-way bulkhead with a stainless steel, 1.25" female NPT fitting. The discharge piping shall include a stainless steel ball valve rated for 200 psi WOG. The bulkhead penetration shall be factory installed and warranted by the manufacturer to be watertight.

The access-way shall include a single NEMA 6 electrical quick disconnect for all power and control functions, factory installed with access-way shall include a 2" PVC vent to prevent sewage gases from accumulating in the tank.

**215-1.5.5 Core Unit.** The Grinder Pump Station shall have cartridge type easily removable core assemblies containing pump, motor, grinder, all motor controls, check valve, anti-siphon valve, and electrical quick disconnect and wiring. The watertight integrity of each core unit shall be established by 100% factory test at a minimum of 5 PSIG.

**215-1.5.6 Controls.** All necessary controls shall be located in the top housing of the core unit. The top housing will be attached with stainless steel fasteners.

Non-fouling waste water level detection for controlling pump operation shall be accomplished by monitoring the pressure changes in an integral air-bell level sensor connected to a pressure switch. The level detection device shall have no moving parts in direct contact with the waste water. High-level sensing will be accomplished in the manner detailed above by a separate air-bell sensor and pressure switch of the same type.

To assure reliable operation of the pressure sensitive switches, each core shall be equipped with a breather assembly, complete with a suitable means to prevent accidental entry of water into the motor compartment.

The grinder pump will be furnished with a length of 6 conductor 14 gauge, type SJOW cable, pre-wired and watertight to meet UL requirements.

**215-1.5.7 Alarm and Disconnect Panel.** Each grinder pump station shall include a NEMA 4X with a generator plug, UL listed ALARM/DISCONNECT PANEL suitable for wall or pole mounting. The NEMA 4X enclosure shall be manufactured of thermoplastic to assure corrosion resistance. The enclosure shall include a hinged, pad lockable cover, secured dead front and component knockouts. The enclosure shall not exceed 11.38" W x 13.5" H x 5.63" D.

For each core, the panel shall contain one 15 amp, double pole circuit breaker for the power circuit and one 15 amp single pole circuit breaker alarm circuit. The panel shall contain terminal blocks, integral power bus, push to run feature and a complete alarm circuit.

The Alarm/Disconnect Panel shall include the following features: audio and visual alarm, push to run switch, and high level (redundant) pump starting control. The alarm sequence is to be as follows:

When liquid level in the sewage wet-well rises above the alarm level, visual and audio alarms will be activated. The contacts on the alarm pressure switch will close. The redundant pump starting system will be energized.

The audio alarm may be silenced by means of the externally mounted, push-to-silence button.

Visual alarm remains illuminated until the sewage level in the wet-well drops below the "off" setting the alarm pressure switch.

The visual alarm lamp shall be inside a read fluted lens at least 2 5/8" in diameter and 1 and 11/16" in height. Visual alarm shall be mounted to the top of the enclosure in such manner as to maintain NEMA 4X rating. For duplex units, in addition to the above, two high level indicator lights shall be mounted behind the access cover.

During a high level alarm condition the appropriate light will illuminate to indicate which pump core requires servicing.

The audio alarm shall be a printed circuit board in conjunction with an 86 dB buzzer with quick mounting terminal strip mounted in the interior of the enclosure. The audio alarm shall be capable of being deactivated by depressing a push-type switch which is encapsulated in a weatherproof silicone boot and mounted on the bottom of the enclosure.

The entire Alarm/Disconnect Panel as manufactured shall be listed by Underwriters Laboratories, Inc.

**215-1.5.8 Serviceability.** The grinder pump core unit shall have two lifting hooks complete with nylon lift-out harness connected to its top housing to facilitate easy core removal when necessary. Mechanical and electrical connections shall provide easy disconnect accessibility for core unit removal and installation. A push to run feature will be provided for field trouble shooting. All motor control components shall be mounted on a readily replaceable bracket for ease of field service.

**215-1.5.9 Check Valve with Enclosure.** Where Check Valve with Enclosure installation is called out in the plans, the Contractor shall install a 2" PVC True Union Swing check valve,

Series 1720, as manufactured by Flo Control (818-845-8741) or equal and a concrete meter box and cover, Part 37B as manufactured by San Diego Precast or equal with the cover embossed with the word "Sewer". When located in the traveled way, a cast iron cover shall be installed.

**215-1.5.10 Electrical Connections.** The electrical wiring from the private pump shall be connected to the property's electrical panel, in accordance with all applicable governing codes, and the City electrical standards.

Within 10 Working Days after the activation of a pump system, the Contractor shall make a payment of \$4,225 to the property owner. The Contractor shall provide to the City proof of payment by submitting a copy of the canceled check and a receipt with the property owners signature. The Contractor shall not be entitled to compensation unless this proof is provided. This pump payment, and all costs related to providing proof to the City and contacting the property owner, shall be included in the Bid item for "Pump Compensation."

**ADD: SECTION 216 – DETECTABLE/TACTILE WARNING TILES**

**216-1 DETECTABLE/TACTILE WARNING TILES.**

**216-1.1 General.** This section includes specification for Cast in Place Detectable/Tactile Warning Tiles, embedded in an inline dome pattern, on all curb ramps and walking surfaces at the locations and to the dimension shown on the Plans, in accordance with these Special Provisions and the following references:

Americans with Disabilities Act (Title III Regulations, 28 CFR Part 36 ADA STANDARDS FOR ACCESSIBLE DESIGN, Appendix A, Section 4.29.2 DETECTABLE WARNINGS ON WALKING SURFACES).

California Code of Regulations (CCR) Title 24, Part 2, Section 1102B definition of "Detectable Warning," Section 1127B.5.7 for "Curb Ramps," Section 1133B.8.5 for "Detectable Warnings at Hazardous Vehicular Areas" and California Department of General Services Division of the State Architect's (DSA) Interpretation of Regulations Document IR 11-B4.

**216-1.2 Submittals.** Submittals shall be in accordance with 2-5.3 and contain manufacturer's Product Data for each specified product, including:

- a) Installer's Certification
- b) Installation Instructions
- c) Cleaning and Protection Specification
- d) Maintenance Recommendations
- e) 2 tile samples, 18" x 18" minimum size of the kind proposed for use

The name and contact information of the manufacturer of the Cast in Place Detectable/Tactile Warning Surface Tiles used shall be included on the Contract As-built Drawings.

**216-1.2.1 Material Test Reports.** The Contractor shall submit complete test reports from qualified independent testing laboratories to certify that materials proposed for use are in compliance with requirements of and meet or exceed the properties indicated in 216,

“Detectable/Tactile Warning Tiles.” All test reports shall be current within a 24-month period.

**216-1.3 Quality Control.** The Contractor shall provide Cast in Place Detectable/Tactile Warning Tiles and accessories with a minimum of 5 years manufacturer’s warranty that is transferable to the City from the date of final completion against breakage, fading, chipping, peeling, cracking, deformation, and loosening of tiles. The Contractor shall engage an experienced installer certified in writing by tile manufacturer, who has successfully completed tile installations similar in material, design, and extent to that indicated for Project.

**216-1.3.1 Delivery, Storage, and Handling.** Tiles shall be suitably packaged or crated to prevent damage in shipment or handling. Finished surfaces shall be protected by sturdy wrappings to protect tile from concrete residue during installation.

**216-1.4 Materials.** Detectable warning panels shall comply with the State standard of 36” deep by full width of the curb ramp. The Contractor may use one full size panel (i.e., 3’-0” x 4’-0”) or w2 panels of (3’-0” x 2’-0”). No visible warping of panels shall be allowed.

The color shall be yellow conforming to Federal Standard 595B Table IV, Color No. 33538. Color shall be homogeneous throughout the tile.

The stainless steel Cast in Place Detectable/Tactile Warning Surface Tiles shall be of 16 gauge Type 304L with an integral micro-texture non-slip surface stamped into the stainless steel plate on the top of the domes and in the field surface between the domes. It shall have an ultra violet stabilized coating. The tile shall incorporate an in-line pattern of truncated domes measuring nominal 0.2” height, 0.9” to 1.4” base diameter, and 0.45” top diameter, and center to center spacing of nominal 2.35”.

Vitrified Polymer Composite (VPC) Cast in Place Detectable/Tactile Warning Surface Tiles shall be an epoxy polymer composition with an ultra violet stabilized coating employing aluminum oxide particles in the truncated domes. The tile shall incorporate an in-line pattern of truncated domes measuring nominal 0.2” height, 0.9” base diameter, and 0.45” top diameter, and center to center spacing of nominal 2.35”. The field area shall consist of an integral non-slip surface with a minimum of 40° - 90° raised points 0.045” high, per square inch.

**216-1.5 Manufacturers.** Materials from the Manufacturers listed in these specifications or on the City’s AML do not require a submittal. In lieu of the submittal, the Contractor is required to certify in writing, that material incorporated in the Work comply with the Contract Documents. Any substitutions requested by the Contractor shall require a formal submittal review process.



## PART 3

# CONSTRUCTION METHODS

### SECTION 300 – EARTHWORK

#### **300-1.3.2 Requirements.**

(a) Bituminous Pavement; REVISE first sentence to read:

Bituminous pavement shall be cut and removed in such a manner so as not to tear, bulge or displace adjacent paving by use of saw cutting, rockwheel, jackhammer, or milling machine. Wheel type pressure cutters and drop hammer cutters will not be permitted for final edge cut.

#### **300-1.4 Payment.** ADD the following:

When the item of clearing and grubbing is paid for on a lump sum basis, any adjustment in compensation due to an increase or decrease in quantity of work which is ordered by the Engineer will be made in accordance with 3-2.2, "Contract Unit Prices."

Removal and disposal of railroad tracks within the excavation shall be measured along the centerline of each pair of rails to be removed. The Contract bid price for removal and disposal of railroad tracks shall include all work necessary to remove and dispose of the tracks.

#### **300-2.5 Slopes.** Second paragraph REVISE to read:

The tops of excavation slopes and the ends of excavations shall be rounded where shown on the plans.

#### **300-3.1 General.** ADD the following:

In order to determine the character of the foundation material, the Contractor shall, if directed by the Engineer, dig test pits and make test borings and foundation bearing tests, and the cost thereof will be paid for as Extra Work.

#### **300-3.5.1 Requirement.** Second sentence, REVISE to read as follows:

No backfill material shall be deposited against the back of concrete abutments, concrete or masonry retaining walls, until the concrete or grout has developed not less than the specified 28-day compressive strength.

Third paragraph, ADD the following to the last sentence:

Except that the backfill for bridge abutments and box culverts, shall have a relative compaction of not less than 95%. The thickness of each layer of backfill shall not exceed 0.67 foot (0.2 meter) before compaction except when compaction is done by water ponding and jetting.

#### **300-4.4 Benching.** First paragraph, DELETE the second sentence and SUBSTITUTE with the following:

A minimum 6' (1.8 meter) horizontal bench shall be constructed to ensure that the new work is constructed on a firm foundation free of loose or disturbed material.

**300-5.2 Imported Borrow.** First paragraph, ADD the following:

Imported borrow shall be of a quality suitable for the purpose intended, free of vegetable matter or other unsatisfactory materials.

Second paragraph after: "ground surface", ADD "after stripping".

**300-6.3 Stripping.** Third paragraph, first sentence, ADD the following:

"to not less than 90% relative compaction".

**300-8.1 Trench Drains.** At beginning of section, ADD the following:

Geotextile fabric for use with rock slope protection shall be either woven or non-woven and conform to 213-2.2, "Physical Properties." In addition, fabric weight shall be not less than 6 ounces per square yard (200 grams per square meter) in accordance with ASTM Designation D 1910.

**300-9.1 Bank and Shore Protection.** Prior to the first sentence, ADD the following:

Geotextile fabric for use with rock slope protection shall be either woven or non-woven and shall conform to 213-2, "Geosynthetics." In addition, fabric weight shall be no less than 6 ounces per square yard (200 grams per square meter) in accordance with ASTM Designation D 1910.

**300-9.1.1 Placement.** First paragraph, prior to first sentence ADD the following:

Surfaces upon or against which filter fabric is to be placed, shall be free of loose or extraneous material and sharp objects that may damage the fabric during installation. Filter Fabric shall additionally conform to the ground surface without stretching when outer stone cover or bedding layer of aggregate particles is laid.

Second paragraph, third sentence, REVISE to read as follows:

The size and composition of the stitching material and stitching pattern shall be approved by the Engineer.

Sixth paragraph, ADD the following:

For filter fabric which, in the opinion of the Engineer, is not resistant to ultra violet rays, the 7 day period shall be reduced to 24 hours.

ADD eighth paragraph:

Except as otherwise specified in these Standard Specifications, special provisions and Plans, filter fabric shall be handled and placed in accordance with the manufacturer's recommendations.

**ADD: 300-12 RIPRAP FOR ROCK SLOPE PROTECTION.**

**300-12.1 General.** Rock slope protection shall consist of placing revetment type rock course on the slopes. The slope protection shall be placed in conformance with these specifications, the special provisions, and the details and dimensions shown on the plans or as directed by the Engineer.

The size of the individual pieces of rock shall be as indicated in the table(s) in 200-1.6, "Stone for Riprap" and 200-1.7, "Selection of Riprap and Filter Blanket Material" or in accordance with the Special Provisions. The classes of rock slope protection are indicated by the average

size of the individual piece to be used and will be designated on the plans as 2-ton, 1 ton, 1/2 ton, 1/4 ton, No. 2 backing, or No. 3 backing.

**300-12.2 Placing Stone.** Rock slope protection shall be placed in accordance with one of the following methods as designated on the plan.

### METHOD A PLACEMENT

A footing trench shall be excavated along the toe of slope as shown on the plans. The larger rocks shall be placed in the footing trench.

Rocks shall be placed with their longitudinal axis normal to the embankment face and arranged so that each rock above the foundation course has a 3-point bearing on the underlying rocks. Foundation course is the course placed on the slope in contact with the ground surface. Bearing on smaller rocks, which may be used for chinking voids, will not be acceptable. Placing of rocks by dumping will not be permitted.

Local surface irregularities of the slope protection shall not vary from the planned slope by more than one foot measured at right angles to the slope.

### METHOD B PLACEMENT

A footing trench shall be excavated along the toe of the slope as shown on the plans.

Rocks shall be so placed as to provide a minimum of voids and the larger rocks shall be placed in the toe course and on the outside surface of the slope protection. The rock may be placed by dumping and may be spread in layers by bulldozers or other suitable equipment.

Local surface irregularities of the slope protection shall not vary from the planned slopes by more than one foot measured at right angle to the slope. At the completion of slope protection work, the footing trench shall be filled with excavated material and compaction will not be required.

**300-12.3 Measurement and Payment.** Quantities of rock slope protection to be paid for by the cubic yard or square yard will be determined from the dimensions shown on the plans or the dimensions directed by the Engineer and rock slope protection placed in excess of these dimensions will not be paid for. Measurements will be made parallel to the slope.

Quantities of rock slope protection to be paid for by the Ton will be weighed in accordance with 9-1, "MEASUREMENT OF QUANTITIES FOR UNIT PRICE WORK."

Quantities of earthwork required in connection with placing rock slope protection will be measured for the type of earthwork involved in accordance with 300-7, "Excavation." Full compensation for backfilling footing trenches shall be included in the Bid item for excavating the trench.

## **SECTION 301 – TREATED SOIL, SUBGRADE PREPARATION AND PLACEMENT OF BASE MATERIALS**

**301-1.2 Preparation of Subgrade.** After first paragraph, ADD the following:

Subgrade soil shall be tested for expansive potential in accordance with ASTM Test Method D4829. If expansive soil is encountered within the roadway improvements and extending

beyond the limit of paved sidewalks, curb and gutter or edge of pavement, then one of the following methods shall be used to mitigate the expansive soil:

Expansive soil subgrade shall be removed, and replaced with a non-expansive material having an expansion index of less than 20 (ASTM D 4829). The depth of excavation will be based on the Expansive Index of the native soil in accordance with the following table:

Expansive index of native subgrade soil	Minimum depth of expansive materials to be removed and replaced (in inches) <sup>1</sup>
0-50	None
51-90	18
91-130	24
Above 130	36

Note 1: Removal shall extend beyond edge of sidewalk a horizontal distance equivalent to the minimum depth of removal.

“R” value shall be determined on the original soil for pavement design.

The Contractor may submit an optional plan for soil treatment to the Engineer for review and approval in accordance with 2-5.3, “Submittals.”

**301-1.3 Relative Compaction.** First paragraph, REVISE to read as follows:

When pavement, base, subbase, or cross gutter is to be placed directly on subgrade material, the top 12” (300 mm) of subgrade material in streets and the top 6” (150 mm) of subgrade material in alleys shall be compacted to a minimum density of 95% relative compaction. When curb, gutter, driveways, or sidewalks are to be placed on the subgrade material, the top 6” (150 mm) of such subgrade material shall be compacted to a relative compaction of 90%.

ADD the following paragraphs:

When in the opinion of the Engineer, the Contractor has employed satisfactory construction methods in accordance with the Standard Specifications, and the subgrade is at or greater than optimum moisture content, the following additional test may be required by the Engineer:

The subgrade shall be tested with a loaded truck of ten ton capacity or greater, and having a load of 75 pounds (34 kilogram) or more per square inch of the tire contact area. The subgrade shall support this load without perceptible indentation or movement. The base, surfacing or pavement shall not be scheduled for construction until the subgrade has been tested as described above and approved by the Engineer.

**301-1.6 Adjustment of Manhole Frame and Cover Sets to Grade.** DELETE in its entirety and SUBSTITUTE the following:

- a) a) Castings, pre-fabricated risers, frames or covers of existing City manholes or gate valves, shall be adjusted to conform to the new grade by the Contractor in compliance with the City of San Diego Standard Drawings SDS-106 “Manhole 5’x 3’

Diameter”, SDS-107 “Manhole – 4’x 3’ Diameter (for 15” Maximum Diameter Pipe)”, San Diego Regional Standard Drawings WV-01 “Concrete Trust and Anchor Block Installations”, WV-02 Gate Well Cap & Can Installation, for Valves 4” (100mm) and Larger”, WV-03”Gate Well Identification”, WV-04 “Steel Valve Stem Extension for Valves 4” (100mm) and Larger”, and WV-05 “Steel Valve Stem Extension for Valves 2” (50mm) and Smaller”.

- b) Sewer and storm drain manhole covers shall be raised by installing pre-fabricated risers manufactured in 1" increments. In some locations, due to existing condition of the manhole, the Engineer may require digging up the existing manhole and repairing according to the following criteria.
- c) The pavement shall be cut to a width of no less than 8" or more than 12" and a depth of no less than 6" around the circumference of the manhole frame. The outside cut shall be as neat and clean as possible to insure a smooth joint between asphalt and concrete collar.
- d) Once the frame has been broken loose and the debris is cleared away, the frame shall be shimmed to match the new grade. Only broken brick shall be used for shimming as it will remain a permanent part of the frame base. The space shall then be grouted to insure total and complete support of the manhole frame.
- e) The concrete collar shall then be poured and finished to insure a level, smooth connection between the asphalt pavement and manhole. Manhole frames shall be set in Class "C" mortar.
- f) Gate valve caps, casings and leveling shall be done after resurfacing or slurry seal. Measurements shall be made from the top of the new grade to the top of the gate cap to determine the length requirement for the extension of the valve riser casing. This extension shall be cut from 8" O.D. by 1/8" steel casing only. The gate valve cap shall be removed, the extension placed on the existing riser casing, the gate valve cap replaced and checked for assurance as to height and levelness. The extension shall be circumferentially welded to the old casing.
- g) In the event that an old style casing of a different size is found, the following procedures will be followed. Gate valves shall be cut to a width no less than 6" or more than 8" and to a depth of no less than 8" around the circumference of the valve casing. The new casing shall then be placed around or inside the old casing. A concrete collar shall then be poured and finished to insure a level, smooth connection between asphalt and gate valve cover. 8" gate caps shall be furnished by the City to replace old odd-size caps. Gate valve caps and sewer manholes, covered by previous resurfacing or resurfacing, shall be located and marked out by City Forces. These shall be raised by the Contractor in the same manner a previously described. Except for those areas which have been identified for cold milling in accordance with 302-5.2, “Cold Milling Asphalt Concrete Pavement” which the Contractor shall be responsible for locating, all metal objects in the area shall be milled.

**301-1.7 Payment.** DELETE Paragraphs 3 and 4 in their entirety and SUBSTITUTE the following:

Payment for adjusting existing manhole frames and gate valve covers to grade shall be made at the Contract unit price for each manhole frame and gate valve cover.

**301-1.7 Payment.** Last paragraph, REVISE to read:

If no provision for manhole adjustment or reconstruction is made, payment for such work will be deemed to be included in the other items of work and no additional payment will be made.

**301-3.1.5 Cement Application, Mixing and Spreading.** DELETE first sentence in its entirety and SUBSTITUTE the following:

Mixing of the soil, cement and water shall be accomplished by the central plant-mixed method only.

**301-3.1.8 Placing, Compacting, and Finishing.** ADD the following:

Vibratory rollers shall not be used for finish rolling of cement treated base.

**301-3.3.3 Central-Plant Mixing.** Second paragraph, ADD the following:

The cement feeder shall be equipped with a device by which the rate of cement feed can be determined while the plant is in full operation.

**301-3.3.6 Measurement and Payment of Cement-Treated Base (CTB).** REVISE section to read as follows:

Cement-treated base and subbase shall be paid for by the ton, complete in place as shown on the plans or as directed by the Engineer. Furnishing, mixing, spreading, shaping, compacting, trimming and curing of the treated materials shall be included in the Bid item for CTB.

**ADD: 301-3.3.7 Surfacing of Cement-Treated Base.** Asphalt concrete paving on Cement-Treated Base at an earlier date than the seventh day will be permitted upon approval of the Engineer, but no paving will be permitted between the day CTB is placed and 5 days after the treated base has been placed.

Failure to meet the compaction requirements of the treated base will modify the placement of paving in the following manner:

<u>Compaction</u>	<u>Before 7 Days</u>	<u>7 Days or Greater</u>
90-95%	Not Permitted	Permitted

## SECTION 302 – ROADWAY SURFACING

**302-4.1 Material.** ADD the following:

Material shall be Rubberized Emulsion-Aggregate Slurry (REAS) in accordance with 600-3.2, “Materials.”

**302-4.2.1 General.** ADD the following:

The aggregate shall be at approximately atmospheric temperature and shall not have moisture content in excess of 5% of dry weight. The moisture content shall be determined before loading the aggregate on the slurry truck.

**302-4.2.2 Continuous-Flow Mixers.** DELETE section in its entirety and SUBSTITUTE the following:

Slurry mixing equipment shall be of the "continuous flow" mixing type with calibrated controls, capable of accurately delivering a predetermined proportion of aggregate, water and asphalt emulsion to the mixing chamber and to discharge the thoroughly-mixed product on a continuous basis. The aggregate shall be pre-wetted immediately prior to mixing with the emulsion. The mixing unit of the mixing chamber shall be capable of thoroughly blending all ingredients without violent agitation. It shall be equipped with a front bumper mounted pressure water system and fog type spray bar adequate for complete fogging of the surface immediately preceding the spreading of the slurry. It shall have sufficient storage capacity to properly mix a minimum of 12 tons of slurry.

The emulsion storage tank of the mixing machine shall be equipped with a convenient device, calibrated in 10 gallon increments, to measure the quantity of emulsion actually used with each mixer load of slurry. The aggregate gate will be equipped with a convenient device, visible from the ground, calibrated in inches to determine the gate setting of the aggregate feed. The drive shaft of the aggregate feeder shall be equipped with a revolution counter reading to the nearest full revolution of the aggregate delivery belt. The counter shall be located so that the Engineer can observe the counter while walking along side the slurry truck, while it is operating. Devices used for metering and blending additives shall be approved by the Engineer. If sulphate of ammonia is used as the retarding agent, it shall be introduced in liquid form.

Attached to the mixing machine shall be a mechanical type squeegee distributor equipped with flexible material in contact with the surface to prevent loss of slurry and shall be adjustable to assure a uniform spread on varying grades and crowns. It shall be steerable, adjustable in width, with a flexible strike-off. The box shall not cause grooving of the slurry by any of its parts. It shall be kept clean, and build-up of material on the spreader will not be permitted. The type of drag, linen or other textile shall be approved by the Engineer. It shall be cleaned or changed as frequently as needed or when so directed.

**ADD: 302-4.2.3 Contractor's Equipment And Facilities.** The equipment to be used for proportioning, mixing and applying the slurry seal shall be available for inspection and approval not less than 10 days before commencement of slurry application. The City reserves the right to disqualify equipment, due to its age, capacity, capability, mechanical condition or other factors which could cause substandard performance and/or excessive delays or unreasonable inconvenience to the public. In the event a truck is disqualified, the Contractor shall have an additional approved slurry machine available for use within 1 hour to protect the integrity of work schedules against mechanical breakdown.

Hand tools shall be provided as necessary to perform the work and to distribute and strike-off slurry in areas not appropriate for machine work.



### **302-4.3.1 General.** ADD the following:

The Contractor shall be fully responsible for locating and obtaining permission to use stockpile sites. Aggregate may be stockpiled on public property sites approved by the City.

Where the Contractor may find it advantageous to use private property, he shall make its own arrangements for its use, and to obtain appropriate permits, and shall assume full responsibility for its rental, preparation, and maintenance. The Contractor shall clean up public or private property in a manner satisfactory to the City and the property owner. Precautions shall be taken to ensure that stockpiles do not become contaminated with oversized rock, clay, silt or excessive amounts of moisture; segregation of the aggregate will not be permitted. Aggregate samples will be taken from field stockpile location prior to any addition of mineral fillers such as cement or lime, to determine the sand equivalent value in accordance with 203-5.2, "Materials." The addition of mineral fillers such as cement, lime or sulphates may be added during application of the slurry mixture to the City streets.

The Contractor shall provide suitable storage facilities for the asphalt emulsion. Suitable heat shall be provided as necessary.

Immediately prior to slurry sealing operations all utilities covers and monuments shall be covered by heavy plastic material, or other means approved by the Engineer. Covers and voids around frames are to be cleaned of slurry material by the end of the same work day. If the utility covers are not cleaned by the following day, no additional slurry seal shall be placed until the covers are cleaned.

Decorative and tile walkway crossing shall be protected from slurry seal operation.

Care shall be exercised to ensure the maximum rate of application with no excess, and leaving no unsightly appearance. The Contractor shall be responsible for the removal of all excess emulsion spread beyond street limits, on driveways, sidewalks, etc.

### **302-4.3.2 Spreading.** ADD the following:

The application of slurry on major streets and collector streets shall begin after 8:30 A.M. and shall be opened to traffic by 3:30 P.M.

Residential streets shall have slurry applied after 7:00 A.M. and shall be open for traffic by 4:00 P.M.

No slurry shall be applied when the weather forecast exceeds a 50% probability of rainfall; when the air or pavement temperature is no higher than 50° and falling; when the temperature at 7:00 A.M. is 75° and rising to forecast high of 90° or more; or when high relative humidity would prolong the curing beyond a reasonable time. Slurry may be applied when both air and pavement temperatures are 45° and rising.

Immediately prior to spreading the slurry, the Contractor shall clean the surface and remove all loose material, silt spots, vegetation or other objectionable matter, and thoroughly sweep from curb face to curb face with a pickup power sweeper. Slurry will not be applied until the surface condition is satisfactory to the Engineer.

Power sweepers or other equipment used to clean the surface shall be those normally used for the purpose and shall be approved by the Engineer.

The surface of pavement shall be fogged with water directly preceding the application of the slurry. The slurry mixture shall be of the designed consistency when deposited on the surface and no additional elements shall be added. Total mixing time shall not exceed 4 minutes. A sufficient amount of slurry shall be carried in all parts of the spreader at all times so that complete coverage is obtained. No rippling, lumping, balling or unmixed aggregate shall be permitted, nor shall segregation of the emulsion and aggregate fines from the course aggregate. If the coarse aggregates settle to the bottom of the mix, the slurry shall be removed from the pavement. No excessive braking of the emulsion in the spreader box will be allowed, nor shall the condition known as "skinning over/false set" of the slurry is allowed. No streaks such as caused by oversize aggregate will be left in the finished pavement. No more than 25% water can be used in the mixture without the approval of the Engineer (includes water in the emulsion and mixing water). No additional water shall be added after material leaves pug mill. If test results indicate that more than 25% of water has been added, the following monetary percentages (%) shall be deducted from that day's pay:

<u>Total % of Water</u>	<u>% Deduction</u>
0 - 25.0	0
25.1 - 29.9	10
30.0 - 34.9	25
Over - 35.0	100

No excessive build-up causing unsightly appearance shall be permitted on longitudinal or transverse joints. Unless otherwise approved, the overlap at joints will not exceed two inches 2" and shall be feathered; joints between asphalt pavement and concrete pavement and/or concrete gutters shall be completely and neatly sealed without excessive slop-over onto the concrete; and unsightly and objectionable excess shall be immediately removed. At street intersections at the beginning and end of work segments, the slurry shall be neatly spread or trimmed to a straight line defined by the near curb lines of the street adjacent to the work. The beginning and end of a slurry seal area shall be a clean, straight line created by placing 15 lb. felt paper to create the line. Asphalt alley aprons abutting streets to be slurry sealed shall be slurry sealed to straight cut off line.

Execution of a separate agreement by the City and the Contractor in accordance with 302-4.3.2.1, "Seasonal Work/Separate Agreement" shall constitute satisfactory completion of the slurry sealing work required by 302-4, "EMULSION-AGGREGATE SLURRY" for the purpose of filing the notice of completion for this contract. Prior to execution of the separate agreement by the City, the Contractor shall provide the City with: i) a faithful performance bond in the amount of 100% of the Contractor's Bid item for Work items covered by 302-4, "EMULSION-AGGREGATE SLURRY"; and ii) a certificate of insurance demonstrating in a manner satisfactory to the City that the Contractor has the insurance coverage required by the separate agreement.

**ADD: 302-4.3.2.1 Seasonal Work/Separate Agreement.** The slurry sealing work to be performed in accordance with 302-4, “EMULSION-AGGREGATE SLURRY” shall not be performed during the months of November, December, January, February, and March. If the Work performed in accordance with these specifications progresses such that the slurry sealing work would occur during the months specified above, the Contractor and the City shall enter into a separate agreement for performance of the slurry sealing work during an alternate time period. The separate agreement shall be in the form attached to the Contract documents as an appendix.

**ADD: 302-4.3.2.2 Separate Agreement, Bond, and Insurance.** Execution of a separate agreement by the City and the Contractor in accordance with 302-4.3.2.1, “Seasonal Work/Separate Agreement” shall constitute satisfactory completion of the slurry sealing work required by 302-4, “EMULSION-AGGREGATE SLURRY” for the purpose of filing the notice of completion for this contract. Prior to execution of the separate agreement by the City, the Contractor shall provide the City with: i) a faithful performance bond in the amount of 100% of the Contractor’s bid item for this section 302-4, “EMULSION-AGGREGATE SLURRY”; and ii) a certificate of insurance demonstrating in a manner satisfactory to the City that the Contractor has the insurance coverage required by the separate agreement.

**302-4.3.3 Field Sampling.** ADD the following:

During the performance of the work, the City will take at least two field samples of the mixed slurry per slurry mixer per day. The West Track Abrasion test sample shall not be transported until slurry has set as defined by ASTM D 3910. All field samples shall have the following values:

TABLE 302-4.3.3 (A)

Tests	Test Method	Requirements	
		Min.	Max.
Wet Track Abrasion Test, Weight loss, gm/m <sup>2</sup> (gm/ft <sup>2</sup> ) Type I Aggregate	ASTM D 3910 <sup>1</sup>	0	540(50)
Wet Track Abrasion Test, Weight loss, gm/m <sup>2</sup> (gm/ft <sup>2</sup> ) Type II Aggregate	ASTM D 3910 <sup>1</sup>	0	650(60)
Consistency Test (mm)			
Extraction Test (Calculated Emulsion Content, %)	ASTM D 3910 <sup>1</sup>	20	40
Water Content, % of Dry Aggregate Weight	ASTM D 2172, Calif. 382 <sup>2</sup>	± 1.0% of mix design	
	See note 3 below	—	25
<ol style="list-style-type: none"> <li>1. Modified ASTM D 3910 to include 4.75 mm (No. 4) aggregate or greater and to be performed using field samples.</li> <li>2. Modified CTM 382 to allow 1000±100 gram sample.</li> <li>3. Weigh a minimum of 500 grams of homogenized mixed slurry into a previously tared quart can with a friction lid. The lid shall be placed on the can to prevent loss of material during transportation. Place the can with the lid off in an oven and dry to constant mass at 110(230±9°F). Cool, reweigh and calculate the water content.</li> </ol>			

Subsection 6.4.4.7 of ASTM D 3910 may be modified to use a microwave oven for drying the specimen after the abrasion cycle and the debris has been washed off.

If the test results fail to meet the specifications, the Contractor shall cease slurry operation with the nonconforming mixer until it demonstrates the ability to comply with the Specifications.

No change in the proportions of the approved mix design will be permitted without the Engineer's approval. If the Contractor changes its source of supply for either the aggregate or the emulsion, the mix design approval and the quality control procedures specified herein shall be repeated. Mixes used shall not deviate more than  $\pm 1.0$  percent from the approved proportion of emulsion. (Example: If the approved mix is 16% emulsion, then the emulsion content shall be between 15% and 17%). The percentage of emulsion is based on the dry weight of aggregate.

**302-4.4 Public Convenience and Traffic Control.** ADD the following:

The City reserves the right to work cooperatively with the Contractor in preparing the slurry seal schedule and to make such reasonable changes as may be necessary to avoid conflict with other activities.

Not less than 5 days or more than 30 days following placement of slurry seal, the street will be re-swept to remove the gravel rebound from vehicular traffic. No separate payment will be made for this service.

Any damage to the uncured slurry shall be the responsibility of the Contractor.

**302-4.5 Measurement and Payment.** ADD the following:

The Contract Price paid per square foot for slurry seal shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the slurry seal, complete in place, including testing for and furnishing mix design, cleaning the surface, furnishing added mixing water and set-control additives, mixing water with aggregates and asphaltic emulsion for coating the pavement, and protecting the seal until it has set, all as shown on the plans, and/or in accordance with these Special Provisions, and as directed by the Engineer. The contract price per square foot shall include pavement markers and striping in accordance with 312-4, "MEASUREMENT AND PAYMENT."

**ADD: 302-4.5.1 Measurement and Payment Under Separate Agreement.** If the City and Contractor enter into a separate agreement for the slurry sealing work in accordance with 302-4.3.2.1, "Seasonal Work/Separate Agreement" the Contractor will be paid for that work in accordance with the terms of the separate agreement.

**302-4.6.1 General.** Payment to the Contractor will be reduced for failure to comply with Wet Track Abrasion Testing requirements stated in 302-4.3.3, "Field Sampling." The percent reduction will be based on the requirements stated in 302-4.6.2, "Reduction in Payment Based on WTAT." Reduction in payment will be applied to all of the material placed per day by the nonconforming slurry mixer.

**302-4.6.2 Reduction in Payment Based On WTAT.** If the average of the Wet Track Abrasion Tests made for each slurry mixer, per day, fail to conform to the requirements specified in 302-4.3.3, “Field Sampling” the Contractor agrees that the payments for the slurry shall be reduced as follows:

TABLE 302-4.6.2 (A)

WTAT Loss gm/m <sup>2</sup> (gm/ft <sup>2</sup> )	Payment Reduction (Percent) Fine & Type I Aggregate
0 – 540 (0 – 50)	0
540.1 – 650 (50.1 – 60)	5
650.1 – 750 (60.1 – 70)	15
750.1 – 860 (70.1 – 80)	30
860.1 – 1070 (80.1 – 99)	70
1070.1 or greater (99.1 or greater <sup>1</sup> )	100

1. Slurry seal with WTAT loss greater than 1070.1 gm/m<sup>2</sup> (99.1 g/feet<sup>2</sup>) shall be removed to the satisfaction of the Engineer.

TABLE 302-4.6.2 (B)

WTAT Loss gm/m <sup>2</sup> (gm/ft <sup>2</sup> )	Payment Reduction (Percent) Type II Aggregate
0 – 650(0 – 60)	0
650.1 – 810 (60.1-75)	15
810.1 – 860 (75.1 – 80)	30
860.1 – 1070 (80.1 – 99)	70
1070.1 or greater (99.1 or greater <sup>1</sup> )	100

1. Slurry seal with WTAT loss greater than 1070.1 gm/m<sup>2</sup> (99.1 g/feet<sup>2</sup>) shall be removed to the satisfaction of the Engineer.

**ADD: 302-4.7 Asphalt Concrete (AC) Patching for Slurry Preparation.** Prior to placement of slurry, existing AC pavement that, has not structurally failed, but contains any surface irregularities other than cracks or damage, shall be repaired by the application of AC patching as necessary to create a smooth and consistent driving surface to the proper line and grade. Failed AC pavement shall be replaced in accordance with 302-5.1.1, “Damaged AC Pavement Replacement.” The determination as to which areas require patching and which have failed shall be as shown on the plans or as designated by the Engineer.

AC patching shall consist of AC pavement of the class and thickness appropriate for the depth of the repair, as shown in table 302-5.5(A) with the exception that Class F paving shall be used for all applications less than 2-inch thick. The depositing, distributing and spreading of the asphalt concrete shall be accomplished in a single continuous operation by means of a

mechanical spreading and finishing machine designed especially for that purpose, except in those areas less than 5' in length or approved by the Engineer for hand application.

The AC paving shall consist of applying asphalt concrete upon the existing roadbed. Asphaltic material shall be hand raked to remove coarse aggregate and feathered allowing the fine materials to cover the affected existing street surface. In all cases where concrete cross gutters lie adjacent to areas where AC paving is required, as determined by the Engineer, then AC paving shall extend only to the edge(s) of the concrete where it shall be feathered.

Payment for AC patching of existing substandard pavement that is outside the trench limits defined by 302-6.8, "Measurement and Payment" and not affected by the Contractor's operations shall be included in the Contract unit price for AC Patching for Slurry Preparation. The cost for all AC patching within the trench limits or any areas where the pavement has been damaged by the Contractor's operations shall be solely the responsibility of the Contractor including any areas not identified to the Engineer prior to trenching in accordance with 302-6, "PORTLAND CEMENT CONCRETE PAVEMENT."

**302-5.1 General.** First paragraph, REPLACE reference to Section 203-6, "ASPHALT CONCRETE" with Section 400-4, "ASPHALT CONCRETE."

Last paragraph, ADD the following:

Testing of underground installations at any given point shall be completed before the surfacing is placed at the point.

**ADD: 302-5.1.1 Damaged AC Pavement Replacement.** Prior to placement of AC overlay or slurry, all existing asphalt concrete pavement that is failing or in extremely poor condition, as determined by the Engineer, shall be removed and replaced (to existing pavement grade) in accordance with 302-6, "PORTLAND CEMENT CONCRETE PAVEMENT." The need for replacement of the existing pavement shall be in accordance with City of San Diego Standard Drawing SDG-107 "Trench Resurfacing for Asphalt Concrete Surface Streets", SDG-108 "Trench Resurfacing for PCC Surface Streets" or both or as designated by the Engineer.

Payment for replacement of existing pavement including Class F asphalt when required shall be included in the unit bid price for Damaged AC Pavement Replacement for the total area replaced and no additional payment shall be made regardless of the number of replacements completed. No payment for pavement replacement will be made when the damage is due to the Contractor's negligence to protect existing improvements.

**302-5.2 Cold Milling Asphalt Concrete Pavement.** ADD the following:

Excessive asphalt concrete pavement adjacent to Type "G" and "H" curb and gutter line, and concrete cross gutters shall be milled in accordance with City of San Diego Standard Drawing SDG-139 "Cold Milling Asphalt Concrete Pavement Detail". Cross gutters shall be cold-planed 1" plus or minus 1/4", within 24 hours or less, of the time the resurfacing shall be placed.

Planned widths of pavements shall be continuous except for intersection at cross streets where the milling shall be carried around corners and day lighting at the point of curb-return.

**302-5.2.3 Removal and Disposal of Material.** ADD the following:

The Contractor shall be responsible for the removal and disposition of the planed grindings so as to insure their re-introduction in the manufacture of various paving products and related material.

**ADD: 302-5.2.4.1 Traffic Detector Loop Replacement.** Some types of street preparation methods which are required prior to street paving and trench excavation will damage or destroy traffic detector loops. Any damage to these detectors, including lead-in conductors, shall require replacement of the entire detector and lead in conductors. The Contractor is required to hire a licensed Contractor holding a C-10 license and experienced in the installation of traffic signals, to install the new traffic detector loops.

Traffic detector loops shall be reinstalled within 15 days from completion of resurfacing of the related street. The Contractor shall contact the City of San Diego's Communications and Electrical Division, Traffic Signal Maintenance, Telephone No. (619) 525-8670 or (619) 525-8680, to lay out locations and size of loops and to test the loops after installation. The Contractor will be responsible for making all field connections.

Traffic detector loops installed in the new street surface shall be Caltrans Type "E" loops described in Caltrans Standard Plan ES-5B. If the Contractor desires to install Caltrans Type "A" or Type "D" loops, the loops shall be installed in the existing pavement prior to roadway resurfacing. A period of 7 days between completion of street surface preparation and resurfacing shall be allowed to accomplish this task.

The installation of Caltrans type "E" loops in lieu of other types of Caltrans loops shall be at no additional cost to the City.

Traffic detector loops shall be installed in accordance with "1999 Standard Special Provisions for Signals, Lighting, and Electrical Systems of The City of San Diego", and Caltrans Standard 86-5. If Caltrans Type "E" loops are installed where Caltrans Type "D" loops are required, four (4) turns will be required in lieu of the 3 turns required by the Caltrans Specification ES-5B.

The cost of traffic detector loop replacement shall be included in the Bid item for detector loops replacement. The price shall be on a per loop basis. The Contractor will be paid for only those loops installed. The City will determine which traffic detector loops are to be replaced. Loops replaced as part of the traffic signal and street lighting shall be paid as a separate item.

**302-5.2.6 Measurement and Payment.** ADD the following:

As a condition of final payment, the Contractor shall submit a signed affidavit stating location and proposed recycling of planed asphalt grindings.



The Contractor shall bear all costs and repairs incurred due to the milling operation. These costs may include, but are not limited to, buried metal objects, or concrete protruding into the milling operation.

**302-5.3 Prime Coat.** After: "Grade SC-250" ADD the following:

"or MC-70."

**302-5.4 Tack Coat.** Last paragraph ADD the following:

Cold pavement joint" is asphalt concrete pavement, which has cooled below the lower limits of the spreading temperature prescribed in 302-5.5, "Distribution and Spreading."

**302-5.5 Distribution and Spreading.** DELETE the first and second paragraphs in their entirety and ADD the following:

- a) Resurfacing shall be continuous through all intersections between the limits of the work segment, unless otherwise shown on the plans or directed by the engineer.
- b) If the street intersection has no parallel concrete cross gutters, resurfacing shall extend to the prolongation of curb or property line as directed by the Engineer. Where asphalt cross gutters are to be surfaced, the Contractor shall furnish and have available, a straight-edge and level. Under the direction of the Engineer, the drainage flow of the cross gutter shall be maintained.
- c) Asphaltic material shall be hand-raked to remove coarse aggregate and feathered, allowing the fine materials to cover the existing street surface adjacent to concrete gutters and concrete cross gutters. On streets that have had previous overlays and not cold planed in accordance with this contract, the initial pull will be held 4" in from the edge of the gutter and then feathered to the edge of the gutter. This last point may differ from street to street and will be under the direction of the Engineer.
- d) If the street intersection has parallel cross gutters, resurfacing shall extend only to the near edge of the concrete where it shall be feathered.
- e) If the street has intersecting concrete cross gutters, they shall not be resurfaced. Asphalt shall be feathered at both edges of the concrete.
- f) In all cases, extreme care shall be taken to prevent blocking drainage.
- g) The Contractor shall unplug roof drains plugged by paving operations and shall rake asphalt into, or away from, existing driveways to provide smooth access and proper drainage to the gutter of the resurfaced street.
- h) Asphalt alley aprons abutting streets to be resurfaced shall be resurfaced to property line.
- i) When tack coating, no more surface shall be tacked than will be overlaid the same day.
- j) On streets over 5% grade, the A/C laydown shall be placed uphill, unless impractical; the determination shall be made by the Engineer.

- k) Manholes, valve caps, or vaults existing in a City street to be resurfaced shall be windowed. (A small hole placed in the asphalt over the manhole, valve cap or vault).
- l) Contractor shall apply soil sterilant/systemic herbicide to vegetation growing in pavement cracks, far enough in advance of resurfacing operations to kill existing growth.
- m) The Contractor shall treat any new weed growth with water-soluble contact herbicides, and remove all vegetation matter from the area to be resurfaced, as directed by the Engineer, or a minimum of 24 hours before applying the tack coat.

**302-5.5 Distribution and Spreading.** ADD the following:

Where the pavement slopes towards a concrete gutter, asphalt concrete shall be placed such that the pavement surface is  $\frac{1}{4}'' \pm 1/8''$  (6 mm  $\pm$  3 mm) above the lip of gutter elevation. Where the pavement slopes away from a concrete gutter, asphaltic concrete shall be placed such that the pavement surface is flush with the lip of gutter elevation unless otherwise directed by the Engineer.

Unless otherwise specified, the first paving pass shall start at the low side of the crown of the street section, and successive passes shall proceed to the high side of the crown of the street section. This shall apply to both sides of the street section unless otherwise directed by the Engineer.

**302-5.5.1 Asphalt Base Distribution and Spreading.** The Contractor may employ distribution and spreading methods as hereinafter specified when the total thickness of asphalt concrete pavement to be constructed is 4" (100 mm) or greater.

Asphalt concrete to be placed by asphalt base distribution and spreading methods shall be a medium coarse type in accordance with 400-4.3, "Combined Aggregates".

The depositing, distribution and spreading of asphalt concrete shall be accomplished in a single, continuous operation by means of a self-propelled paving machine. In those instances in which, due to nature or location of the work, the use of said equipment would be obviously impractical, the asphalt concrete may be placed by any method approved by the Engineer.

Asphalt concrete may be placed with no limitation in thickness, except that final grade elevation shall be attained in accordance with 302-5.5.2, "Asphalt Concrete Pavement Distribution and Spreading".

Successive courses may be laid upon previously laid courses as soon as the previous course has cooled sufficiently to show no appreciable displacement under equipment load. The surface of the finished asphalt base at any point shall not vary more than 0.02' (6 mm) above or below the grade established by the Engineer.

**302-5.5.2 Asphalt Concrete Pavement Distribution and Spreading.** The following distribution and spreading method shall be employed when the specified total thickness of asphalt concrete pavement is less than 4" (100 mm) and for the final course of asphalt concrete pavement the base course of which has been constructed in accordance with 302-5.5.1, "Asphalt Base Distribution and Spreading."

The depositing, distributing and spreading of the 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, except in those instances in which, due to the nature or locations of the work, it would obviously be impractical. The machine shall be equipped with a suitable full width compacting screed capable of being accurately regulated and adjusted to distribute a layer of the material to a definite predetermined thickness as noted in Table 302-5.5.2.

Regardless of the method of construction employed for the lower course of asphalt concrete pavement, the final grade elevation shall be attained in a course of a minimum thickness of 1" (25 mm) and a maximum thickness of 4" (100 mm), placed in accordance with this subsection.

TABLE 302-5.5.2

Specified Total Thickness of Pavement		Minimum Number of Courses	Type of Mixture
Greater Than inch (mm)	But Not More Than inch (mm)		
0	1 (25)	1	Fine
1 (25)	1-1/2 (37.5)	1	Medium
1-1/2 (37.5)	4 (100)	1	Medium or Medium-course, as Directed
4 (100)	-	2	Medium, or Medium-Coarse, as Directed

Spreading, once commenced, shall be continued without interruption. No greater amount of the mixture shall be delivered in any one day than can be properly distributed and rolled during that day.

Successive courses may be laid upon previously laid courses as soon as the previous course has cooled sufficiently to show no perceivable displacement under equipment or loaded material delivery trucks.

**302-5.6.1 General.** Second paragraph, Part (3), ADD the following:

Vibratory rollers shall be limited to breakdown, unless otherwise directed by the Engineer."

After last paragraph, ADD the following:

Unless otherwise directed by the Engineer, initial breakdown rolling shall be followed by a pneumatic-tired roller in accordance with this Subsection. A seal coat shall be applied in accordance with 302-5.10, "Seal Coat."

**302-5.6.2 Density and Smoothness.** First paragraph REVISE to read as follows:

Upon completion, the pavement shall be true to grade and cross section. When a 10' (3 meter) straight edge is laid on the finished surface parallel to the centerline of the roadway, the surface shall not vary from the edge of the straightedge more than 1/8" (3mm); when a 10' (3 meter) straight edge is laid on the finished surface traverse to the centerline of the

roadway, the surface shall not vary from the edge of the straightedge more than  $\frac{1}{4}$ " (6mm), except at intersections or at changes of grade. Any areas that are not within this tolerance shall be brought to grade immediately following the initial rolling.

**302-5.7 Joints.** ADD the following:

Joints between longitudinal (parallel) passes shall be tack coated if the temperature of the preceding pass has cooled below 82° C (180° F).

The pinched joint method of rolling is to be used for rolling all asphalt concrete joints. The roller shall be employed in a longitudinal direction on the first pass of the breakdown roll with the roller entirely on fresh asphalt and 4" (100 mm) to 6" (150 mm) from the existing asphalt or concrete.

For trench restoration work in accordance with the City of San Diego Standard Drawings SDG-107 "Trench Resurfacing for Asphalt Concrete Surface Streets", the asphalt concrete mixture shall be Class F and no seal coat or sand shall be applied.

**302-5.9 Measurement and Payment.** ADD the following:

Quantities of pavement reinforcing fabric placed and paving asphalt applied as a binder for the pavement reinforcing fabric will be paid for at the Contract Price per square yard for pavement reinforcing fabric, not including additional fabric for overlap. Full compensation for furnishing and spreading asphaltic sand to cover exposed binder material, if necessary, shall be considered as included in the Contract Price paid per square yard for pavement reinforcing fabric and no separate payment will be made .

Small quantities of asphalt concrete placed on pavement reinforcing fabric to prevent the fabric from being displaced by construction equipment or to allow traffic to cross over the fabric, shall be considered as part of the layer of asphalt concrete to be placed over the fabric and will be measured and paid for by the ton as asphalt concrete."

For trench restoration work in accordance with the City Standard Drawings SDG-107, "Trench Resurfacing for Asphalt Concrete Surface Streets" the asphalt concrete mixture shall be Class "F" and no seal coat or sand shall be applied.

Payment for emulsified asphalt, seal coat, and sand shall be included in the Bid item for asphalt concrete resurfacing.

**ADD: 302-5.10 Seal Coat.** Asphalt concrete surfaces shall be seal-coated unless otherwise specified. The seal coat shall consist of a coat of asphaltic emulsion and a cover coat of sand. The asphaltic emulsion shall be mixing type conforming to 203-3 "EMULSION ASPHALT". Sand shall be clean and dry.

Immediately before applying asphaltic emulsion, the surface to be seal-coated shall be thoroughly cleaned of all dirt and loose material. Asphaltic emulsion shall not be applied when the street is overly wet or when the atmospheric temperature is below 50°F.

The asphaltic emulsion shall be applied by use of a power-spraying device that uniformly applies the emulsion to the surfacing at a rate of 0.1 to 0.15 gallon per square yard (0.45 L/m<sup>2</sup> to 0.7 L/m<sup>2</sup>). The distributor spray bar shall be equipped with asphaltic emulsion type spray jets. Curbs, gutters, other adjoining improvements shall be carefully protected from

the emulsion, and any such improvements spattered or touched with emulsion shall be carefully cleaned.

Immediately after the application of asphaltic emulsion, a cover coat of sand shall be spread at the rate of 6 to 12 pounds per square yard (3.2 to 6.4 kg. per square meter). After the sand has been spread, any piles, ridges, or uneven distribution shall be broomed to maintain an even layer over the surface.

24 Hours after the seal coat has been applied, the surface shall again be broomed and any excess sand shall be picked up and removed from the job.

**302-5.10.1 Measurement and Payment.** Payment for seal coat for asphalt concrete shall be included in the payment for asphalt concrete unless a Bid item has been provided for it. When a Bid item is provided for seal coat, the unit of measurement shall be either per square foot, in which case measurements shall be made in horizontal planes, or in accordance with Ton of asphalt emulsion and in accordance with Ton of sand.

**302-6.1 General.** ADD the following:

All existing PCC pavement that is broken, displaced, and outside the trench limits as shown on the plans or as designated by the Engineer, shall be replaced by the Contractor in accordance with this section. After the necessary traffic control is in place and before any saw-cutting or equipment mobilizations, the Contractor shall meet with the Engineer and determine the limits of the existing pavement to be replaced. If the Contractor does not meet with the Engineer before removing displaced concrete, all replacement shall be at the Contractor's expense.

The edges of existing pavement for concrete replacement shall be saw cut to neat trimmed lines.

The thickness of the new concrete pavement shall be in accordance with City of San Diego Standard Drawing SDG-107 "Trench Resurfacing for Asphalt Concrete Surface Streets", SDG-108 "Trench Resurfacing for PCC Surface Streets" or both.

Prior to placing concrete, existing subgrade shall be prepared in accordance with 301-1, "SUBGRADE PREPARATION." If any existing unsuitable subgrade, as determined by the Engineer, is encountered it shall be replaced with imported backfill in accordance with 306-1.3.7, "Imported Backfill" prior to preparation.

**302-6.8 Measurement and Payment.** ADD the following:

The Bid item for Concrete Pavement Replacement shall include but not be limited to removal and disposal of existing pavement, subgrade preparation, saw-cutting existing edges, form work, placement and curing of concrete, placing class "F" asphalt, all labor, material, equipment and incidentals as required to construct concrete paving in accordance with the Plans and Specifications.

Payment for replacement of existing and previously disturbed pavement within the work area and outside the trench limits designated by the City of San Diego Standard Drawings shall be included in the Bid item for Concrete Pavement Replacement.

Payment for other disturbed pavement within the work area shall be considered included in the payment for the Work items causing the disturbance. This includes any pavement disturbed by a lack of adequate shoring in accordance with 306-1.1.7, "Shoring."

**302-7.1 General.** ADD the following:

Pavement reinforcing fabric shall be placed where the existing asphalt is failing and as directed by the Engineer.

**302-7.2.3 Placing Fabric.** ADD the following:

The fabric shall be stretched, aligned, and placed without any wrinkles that lap. The test for lapping shall be made by gathering together the fabric in a wrinkle. If the height of the doubled portion of extra fabric is 1/2" or more, the fabric shall be cut to remove the wrinkle, and then lapped in the direction of paving. Lap in excess of 2" shall be removed.

Pavement reinforcing fabric shall be omitted for the portion of conform tapers that are less than 1/8" thick.

**302-7.2.3 Placing Fabric.** Ninth paragraph, last sentence, REVISE to read as follows:

If necessary, exposed tack coat on top of fabric shall be covered lightly with sand.

**ADD: 302-8.4 Class F Asphalt Concrete Paving Deletion.** Where asphalt concrete (AC) overlay is required, Class F asphalt concrete paving shown on City of San Diego Standard Drawing SDG-107, "Trench Resurfacing for Asphalt Concrete Surface Streets", shall not be used for trench resurfacing.

### SECTION 303 – CONCRETE AND MASONRY CONSTRUCTION

**303-1.3 Forms.** Eleventh paragraph, DELETE in its entirety and SUBSTITUTE the following:

Exterior forms are required for structures unless otherwise specified on the Plans or in the Specifications.

**303-1.6.1 General.** ADD the following:

The Contractor shall be responsible for designing and constructing falsework which provides the necessary rigidity, supports the loads imposed, and produces in the finished structure the lines and grades indicated on the plans. No falsework construction shall start until the Engineer has reviewed and approved the plans of the falsework proposed to be used in accordance with 2-5.3, "Submittals." The Contractor shall provide sufficient time for the Engineer to complete this review. Such time shall be proportionate to the complexity of the falsework design and in no case shall be less than 14 days.

For falsework over railroads, approval of the Engineer of the falsework plans will be contingent upon the plans being satisfactory to the Railroad Company involved.

**303-1.9.2 Ordinary Surface Finish.** ADD the following:

If rock pockets, in the opinion of the Engineer, are of such an extent or character as to affect the strength of the structure materially or to endanger the life of the steel reinforcement, he

may declare the concrete defective and require the removal and replacement of the portions of the structure affected.

**ADD: 303-1.12 Cutoff Wall.** The Contractor shall be responsible for installing the cutoff wall in accordance with the specifications, City of Dan Diego Standard Drawing SDS-115 "Cutoff Wall", and the Plans.

**303-2.4 Tests.** After the sixth paragraph; ADD the following:

For brow and/or terrace ditches only, the minimum strength of test specimens shall be:

7 day (cylinders)	1500 psi
14 day (cores)	1750 psi
28 day	2500 psi

**303-5.1.1 General.**

After the first paragraph, ADD the following:

Monolithic curb, gutter, and sidewalk shall not be allowed.

Second paragraph, CHANGE the minimum thickness of walk from "3" (75 mm) " to " 4" (100 mm) ".

**ADD: 303-5.1.4.3 Protection and Preservation of Improvements.** Existing improvements, adjacent property, utility and other facilities, and trees and plants that are not to be removed shall be protected from injury or damage in accordance with 7-9, "PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS."

In the event that any Contractor date stamps/Impressions are located on existing sidewalks, pedestrian ramps or curbs which are scheduled to be removed, the disposition and placement of those stamps/impressions shall be in accordance with SDG-115, "Existing Stamp / Impression Placement". For those date stamps/Impressions to be relocated, the Contractor shall carefully remove and relocate the existing Contractor date stamp/Impression, and street name stamps outside the pedestrian travel way to the parkway area/face of sidewalk, as shown on City of San Diego Standard Drawing SDG-115, "Existing Stamp / Impression Placement". The stamp's position shall be such that it can be read from the street and as close as practical to the stamp's original location.

If it is determined that the date stamps/Impressions cannot be relocated and the Plans designate the Stamps/Impressions to be removed, the Contractor shall saw cut full depth at a minimum distance of 2" from the edge of the stamp, carefully remove, bag, label, and set it aside on Site in a location designated by the Engineer for pickup by others. The Contractor shall stamp, in concrete, the current the Contractor's name and date. The Contractor is to follow the same procedure if, during construction operations, and the Contractor date stamp as designated on the Plans for relocation is broken or is in a condition such that it cannot be relocated as determined by the Engineer.

If any existing curb, gutter, or sidewalk are replaced, the Contractor shall duplicate the surrounding score pattern and color as shown on the Plans. The score pattern and color shall be approved in advance by the Engineer.



### **303-5.3 Placing Concrete.** ADD the following:

The top and/or face of the finished concrete surfaces shall be true and straight, of uniform width and free of humps, sags, or other irregularities. The finished concrete surface shall not vary more than 0.02' (6 mm) from a 10' (3 meter) straight edge, except at grade changes or curves. No freestanding water will be permitted on slope over 1%. No freestanding water deeper than 1/16" (1.5 mm) will be permitted on slopes of less than 1%.

Concrete placed immediately before rain shall be protected to prevent rainwater from coming in contact with it. Sufficient protective covering shall be kept on hand at all times for this purpose.

### **303-5.4.2 Expansion Joints.** Third paragraph, first sentence, REVISE to read:

Expansion joint filler ¼" (6mm) thick shall be placed in walk at the EC and BC of all walk returns, at 45' (13.5 meter) intervals in lieu of the regular weakened plane joint and around all utility poles which may Project into the concrete along the line of the work.

(a) General, Second paragraph; CHANGE "10' (3 meter)" to "15' (4.5 meter)".

Third paragraph; CHANGE "20' (6 meter)" to "15' (4.5 meter)".

### **303-5.5.3 Walk.** ADD the following:

If the continuous sidewalk length equals a block or more, the name of the Contractor, together with the year in which the improvements is constructed, shall be stamped therein to a depth of ¼" (6mm) in letters not less than ¾" (19mm) high, at a location determined by the Engineer.

### **303-5.5.5 Alley Intersections, Access Ramps and Driveways.** REVISE to read as follows:

Alley intersections, access ramps and driveways shall be constructed as specified for concrete pavement in 302-6, "Portland Cement Concrete Pavement" except final finishing for alley intersections, access ramps and the sloping portion of driveways shall be done by hand with a steel trowel followed with medium coarse broom and the remaining portion of the driveway finished as specified for walks in accordance with 303-5.5.3, "walk."

**303-5.6 Curing.** Third paragraph, second sentence, add the underlined: "...bituminous pavement or cement treated base adjacent to concrete curb..."

### **303-5.10 Curb Ramp Construction.**

**303-5.10.1 Installation.** Prior to Bid, the Contractor shall evaluate the Site to determine existing conditions and actual limits of work to assure the installation of compliant curb ramp(s). If the condition of the street and sidewalk is such that the existing slopes do not allow the installation of the required curb ramp and side/flare slopes then the Contractor may extend the construction of the slope up to a maximum length of 15'-0" (linear feet) to catch the required slope even if the required slope is not achieved. Close coordination with the designated Engineer is required at these conditions prior to any demolition of the street and sidewalk and prior to the installation of the curb ramp.

To allow for proper drainage, the slope of the landing to the street shall not be less than 1.0%. The slope of the ramp shall not exceed 1 unit vertical to 12 units horizontal or 8.33%. The slope of the sides and flares shall not exceed 1 unit vertical to 10 units horizontal or 10.0%.

Tile shall be installed in accordance with manufacturer's specifications. Tile shall be oriented such that the rows of detectable surface domes are parallel with the direction of the ramp. When multiple tiles regardless of size are used, the domes shall be aligned between the tiles and throughout the entire detectable surface installation. The edge of the tile(s) nearest the street shall be between 6" and 8" from the gutter flow line. Trimming of tiles may be required to achieve required distance. The Contractor shall trim and refinish edges of trimmed tiles in accordance with manufacturer's recommendations.

The detectable/tactile warning tiles shall be used as shown on the Plans. The Contractor may not change the material specified without the written approval of the Engineer. Failure to adhere to this specification shall result in the rejection of the Work.

**303-5.10.2 Cleaning and Protecting.** The Contractor shall clean and protect tiles against damage during construction period to comply with Cast in Place Detectable/Tactile Warning Surface Tiles manufacturer's specification.

After the installation of the Cast in Place Detectable/Tactile Warning Surface Tiles, the surface of the tiles shall be kept free of any debris, concrete, and sealant and shall be cleaned according to the manufacturer's recommendation.

**303-5.10.3 Preparation.** Environmental Conditions and Protection: Maintain minimum temperature of 40°F in spaces to receive Cast in Place Detectable/Tactile Warning Surface Tiles for at least 24 hours prior to installation, during installation, and for not less than 24 hours after installation.

The use of water for work, cleaning or dust control, etc. shall be contained and controlled and shall not be allowed to come into contact with the general public. Provide barricades or screens to protect the general public. Provide the City approved temporary curb ramps appropriately located for pedestrian flow and safety and proper street drainage.

**303-5.10.4 Payment.** Payment for Cast In Place Detectable/Tactile Warning Surface Tiles, removing and replacing additional concrete in accordance with San Diego Regional Standard Drawing G-11, "Concrete Curb, Gutter, Sidewalk and Pavement Removal and replacement", disposing excavated material, forming the toe of gutter, relocating or raising to grade items in conflict, protecting and preserving existing survey monuments, restoring required pavement, and work in accordance with Sections 216, "DETECTABLE/TACTILE WARNING TILES" and 303, "CONCRETE AND MASONRY CONSTRUCTION" shall be included in the Bid item for Curb Ramp(s).

Additional concrete sidewalk and curb quantities will be paid for in accordance with the Contract unit price for additional curb and additional sidewalk.

**303-6.1 General.** DELETE in its entirety and SUBSTITUTE with the following:

Stamped concrete pavement shall be constructed in accordance with the following conditions:

- a) Prior to construction, a test section at least 5'x5' shall be approval of the test section, it will be designated as the standard for that particular pattern on the subject Project. Approval shall be by inspection as determined by the City's Materials Testing Laboratory. In case of dispute, testing may be required by either ANSI/ASTM E-274

or California Test Method No. 342, with a minimum acceptance value of 0.35 for both tests.

- b) Visual inspection of all work shall be performed to determine that surface texture is as rough as the approved test section and the surface flatness is as flat as the approved test section.
- c) In the event of rejection of a completed pavement area, the Contractor shall have the opportunity to rework the rejected area to meet requirements.
- d) Concrete color shall have prior approval by the Engineer.
- e) Color shall be integrated throughout the entire monolithic pavement section.
- f) Coloring and curing compounds used in the work shall be from the same manufacturer and batch lot.
- g) Color Conditioned Admixture or Pure Mineral Spirits shall be added to the concrete in accordance with approved manufacturers printed instructions. No calcium chloride or other admixtures shall be added to the concrete.
- h) The thickness of the concrete paving shall be increased by one-half inch (1/2") over that which is required for Schedule "J" paving (SDG-113).
- i) The pavement section shall be PCC, Class 560-C-3250, placed in accordance with 302-6, "PORTLAND CEMENT CONCRETE PAVEMENT."
- j) A full structural PCC pavement section shall be provided below the stamped concrete for the support of the stamped concrete (the PCC shall be a monolithic pour of the base and surface – no cold joint permitted).
- k) The final finishing for textured, stamped or colored concrete paving shall be in accordance with 302-6.4.4, "Final Finishing" subject to the following conditions:
  - a. Stamping will be performed before the initial set of the concrete. No water
  - b. A flat surface shall be maintained (no rounding).
  - c. Limited to a running bond pattern.
  - d. 1/4" wide maximum groove –1/4" deep maximum imprint.
  - e. Portland cement concrete shall not be placed in air temperature exceeding eighty-five degrees Fahrenheit (85° F.).
  - f. A very heavy broom finish, perpendicular to the traveled way, shall be used.
  - g. No wax curing or wax sealing is permitted.

**303-6.1.1 Measurement and Payment.** Stamped concrete pavement will be paid for at the Contract Unit Price. If no Bid item has been provided, payment shall be included in the various Bid items.

**ADD: 303-5.1.4 Curb Ramps.**

**303-5.1.4.1 General.** Curb ramps shall be constructed at locations shown on the Plans. The curb ramp shall be laid out by the Contractor in accordance with the City of San Diego Standard Drawings SDG-130, "Detectable/Tactile Warning Tile (Truncated Domes)," SDG-132, "Curb Ramp – Types A and B," SDG-134, "Curb Ramp – Type C1 (for Existing Sidewalk)",

SDG-135, "Curb Ramp – Type C2 (for Existing Sidewalk)," SDG-136, "Curb Ramp – Type D", SDG-137, "Supplemental Curb Ramp Details", SDG-138, "Island Refuge/Passageway Details" and these specifications. The Contractor shall obtain the Engineer's approval of the layout of the curb ramp prior to construction.

**303-5.1.4.2 Conflicts.** The Contractor shall investigate each curb ramp site for potential construction conflicts. When a conflict exists between the installation of a curb ramp with an existing sprinkler system, fence, gate valve, water meter box, traffic signal/street lighting pull box, street sign or landscaping, survey monument, the Contractor shall relocate or raise to grade that portion of the existing conflict within the City right-of-way upon the Engineer's approval.

**303-5.1.4.4 Additional Requirements.** SDG-132 Type "A" and "B" curb ramp construction shall be within the area bound by the grooved borders. Existing score marks shall be met by new concrete.

In cases where a SDG-134 "C1" and SDG-135 "C2" curb ramp is designated and the curb radius is 15' or less, an acceptable transition from the rear sides of the proposed ramp to the existing sidewalk shall be ensured.

Bituminous pavement, concrete pavement, curbs, gutters, sidewalks or driveways removed in connection with the curb ramp construction shall be removed in accordance with 300-1.3, "Removal and Disposal of Materials" and reconstructed in accordance with 302-6, "Portland Cement Concrete Pavement" or 303-5, "Concrete Curbs, Walks, Gutters, Cross Gutters, Alley Intersections, Access Ramps, and Driveways" and San Diego Regional Standard Drawings G-11, "Concrete Curb, Gutter, Sidewalk and Pavement Removal and Replacement".

**303-5.1.4.5 Payments.** The Bid item for Relocation of Existing Historical Concrete Stamp shall include protection and preservation of historical concrete Stamps/Impressions and their replacement, including, the protection and preservation of existing survey monuments, and the disposal of excavated materials.

**ADD: 303-5.9.2 Payment for Additional Curb and Gutter.** Additional curb and gutter removal, disposal and replacement are required adjacent to Work on a proposed access ramp at the location shown on the Plans and as directed by the Engineer. Work necessary for the removal, disposal and installation of curb and gutter shall be in accordance with 303-5.1, "Requirements" and San Diego Regional Standard Drawing G-2 "Curb and Gutter – Combined".

Payment for the additional removal, disposal and replacement of curb and gutter shall be included in the Bid item for Additional Curb and Gutter Removal and Replacement.

**ADD: 303-5.9.3 Additional Sidewalk Removal and Replacement.** The disposal of excavated material, removal and relocation of conflicts, and traffic control which may be required (preparation of plans, approval of, and implementation shall be included in the payment for Additional Sidewalk Removal and Replacement. Sidewalk replacement shall be in accordance with the San Diego Regional Standard Drawings G-7, "Sidewalk - Typical Sections" and San Diego Regional Standard Drawings G-11, "Concrete Curb, Gutter, Sidewalk and Pavement Removal and Replacement".

### **303-5.10 Curb Ramp Construction.**

**303-5.10.1 Installation.** Prior to Bid, the Contractor shall evaluate the Site to determine existing conditions and actual limits of work to assure the installation of compliant curb ramp(s). If the condition of the street and sidewalk is such that the existing slopes do not allow the installation of the required curb ramp and side/flare slopes then the Contractor may extend the construction of the slope up to a maximum length of 15'-0" (linear feet) to catch the required slope even if the required slope is not achieved. Close coordination with the designated Engineer is required at these conditions prior to any demolition of the street and sidewalk and prior to the installation of the curb ramp.

To allow for proper drainage, the slope of the landing to the street shall not be less than 1.0%. The slope of the ramp shall not exceed 1 unit vertical to 12 units horizontal or 8.33%. The slope of the sides and flares shall not exceed 1 unit vertical to 10 units horizontal or 10.0%.

Tile shall be installed in accordance with manufacturer's specifications. Tile shall be oriented such that the rows of detectable surface domes are parallel with the direction of the ramp. When multiple tiles regardless of size are used, the domes shall be aligned between the tiles and throughout the entire detectable surface installation. The edge of the tile(s) nearest the street shall be between 6" and 8" from the gutter flow line. Trimming of tiles may be required to achieve required distance. Contractor shall trim and refinish edges of trimmed tiles in accordance with manufacturer's recommendations.

The Detectable/Tactile Warning Tiles shall be used as shown on the Plans. The Contractor may not change the material specified without the written approval of the Engineer. Failure to adhere to this specification shall result in the rejection of the Work.

**303-5.10.2 Cleaning and Protecting.** Contractor shall clean and protect tiles against damage during construction period to comply with Cast in Place Detectable/Tactile Warning Surface Tiles manufacturer's specification.

After the installation of the Cast in Place Detectable/Tactile Warning Surface Tiles, the surface of the tiles shall be kept free of any debris, concrete, and sealant and shall be cleaned according to the manufacturer's recommendation.

**303-5.10.3 Preparation.** Environmental Conditions and Protection: Maintain minimum temperature of 40°F in spaces to receive Cast in Place Detectable/Tactile Warning Surface Tiles for at least 24 hours prior to installation, during installation, and for not less than 24 hours after installation.

The use of water for work, cleaning or dust control, etc. shall be contained and controlled and shall not be allowed to come into contact with the general public. Provide barricades or screens to protect the general public. Provide City approved temporary curb ramps appropriately located for pedestrian flow and safety and proper street drainage.

**303-5.10.4 Payment.** Payment for Cast In Place Detectable/Tactile Warning Surface Tiles, removing and replacing additional concrete in accordance with San Diego Regional Standard

Drawing G-11, "Concrete Curb, Gutter, Sidewalk and Pavement Removal and Replacement" up to 25 ft<sup>2</sup>, disposing excavated material, forming the toe of gutter, relocating or raising to grade items in conflict, protecting and preserving existing survey monuments, restoring required pavement, and work in accordance with Sections 216, "DETECTABLE/TACTILE WARNING TILES" and 303, "Concrete and Masonry Construction" shall be included in the Bid item for Curb Ramp(s).

Additional concrete sidewalk quantities in excess of 25 ft<sup>2</sup> per curb ramp shall be included in the Bid item for sidewalk.

### SECTION 304 – METAL FABRICATION AND CONSTRUCTION

#### **ADD: 304-5 STREET NAME SIGN.**

**304-5.1 General.** Materials for street name signs shall conform to the requirements of Subsection 206-7.

**304-5.2 Installation.** Street name signs shall be installed at the locations shown on the Plans. Installation of the street name signs shall be in conformance with City of San Diego Standard Drawing SDM-102, "Street Name Sign".

**304-5.3 Measurement and Payment.** Street name signs shall be included in the Contract Price, complete, including footing, post, sign and all required hardware.

### SECTION 306 – UNDERGROUND CONDUIT CONSTRUCTION

**306-1.1.2 Maximum Length of Open Trench.** Third paragraph, ADD the following:

If compliance is not achieved promptly, the Engineer may order the City Forces to restore non-complying portions of the trench after written notice to the Contractor. If the City Forces are used, the cost, at premium overtime rates with overhead charges applied to labor, equipment, and material costs, shall be paid to the City upon demand or shall be withheld from any monies due the Contractor.

**ADD: 306-1.1.7 Shoring.** Shoring is considered to be adequate sheeting, shoring, bracing, or equivalent method for (1) protection of life and limb which shall conform to applicable safety orders; (2) protection of existing underground and above-ground private and public improvements; and (3) the remedy of any and all conditions encountered, regardless of depth, (including, but not limited to trench sloughing, pavement separation, etc.) during the construction of the Project.

The Contractor shall take appropriate measures when trenching adjacent to the existing utilities, i.e., sewer and water mains, storm drain, and conduits to prevent the existing utility trench from sloughing into the new trench excavation. The wall of the new trench may be adjacent to the edge of the existing trench and therefore may contain loose material. The Contractor is required to use adequate shoring or other protective construction measures as required by field conditions to prevent damage to pavement outside the trench width and to prevent sloughing of the trench wall. The Contractor shall be responsible for any sloughing

and damage to the road surface or other utilities that may occur. It shall be the Contractor's responsibility to repair any damaged pavement or utilities as a result of the sloughing. The trench cap shall extend 6 inches beyond the limits of disturbance in accordance with City of San Diego Standard Drawings SDG-107, "Trench Resurfacing for Asphalt Concrete Surfaced Streets" and SDG 108, "Trench Resurfacing for PCC Surfaced Streets".

Payment for protection during excavation shall be included in the Bid item for Shoring.

The Bid item for shoring shall include full compensation for furnishing, installing, maintaining, and removing all sheeting, shoring, or bracing, for any conditions encountered that require shoring, and no additional payment will be allowed therefore.

**306-1.2.1.1 General.** ADD the following:

When jetting care, shall be exercised to avoid floating of the pipe.

Sand Equivalent of 50 (SE=50) may be substituted by SE=30 or better as bedding material for PVC water pipe if:

- a) the top of the pipe and haunch areas are mechanically compacted by means of tamping, vibrating roller or other mechanical tamper,
- b) equipment is of size and type approved by the Engineer, and
- c) 90% relative compaction or better is achieved,

Sanitary sewer pipes shall be bedded in 3/8" crushed rock in accordance with 200-1.2, "Crushed Rock and Rock Dust" and in conformance with City of San Diego Standard Drawings SDS-110, "Pipe Bedding and Trench Backfill for Sewers" Type "C" and SDS-100 Supplement to Regional Standard Drawing ("S" Series).

Water pipes, including steel, shall be bedded in accordance with the details shown on the Standard Drawings for the applicable pipe bedding and trench backfill for mains and City of San Diego Standard Drawing SDW-100 "Supplement to Regional Standard Drawing ("W" Series)". The bedding material shall either be sand, crushed aggregate or native free-draining granular material. 100% of the bedding material shall pass the no. 4 sieve, shall have a sand equivalent of not less than 50 and an expansion when saturated with water of not more than 0.5%.

Sanitary sewer and water pipe bedding shall have a pH with the range of 6.0 or greater, a resistivity of 2,000 ohm-cm. or greater, a soluble sulfate content of 500 ppm or less, and a soluble chloride content of 200 ppm or less. The analytical methods described in California Test 417 and 422 shall be used to measure soluble sulfates and soluble chlorides, respectively.

For all types of water main, except steel pipe, a minimum of 6" of bedding material shall be placed below the outside bottom of pipe. For steel pipe, a minimum of 4" of bedding material shall be placed below the outside bottom of pipe.

Additional bedding ordered below normal bedding, because of unsuitable materials, shall be 1-1/2" (37.5 mm) foundation rock.

For storm drains and all types of gravity sanitary sewer mains, 3/4" (19 mm) crushed rock in accordance with 200-1.2, "Crushed Rock and Rock Dust" shall be placed to a depth of 4" (100



mm) below the outside diameter of the pipe or one inch below the bell of the pipe, whichever is greater.

Compaction in the bedding zone for storm drains gravity sanitary sewers and water mains shall be a minimum of 90% relative density. Care should be exercised in compaction and/or placement of bedding material to avoid damage to pipe coating materials. Damaged coatings shall be repaired immediately, in accordance with manufacturer's recommendation with the approval of the Engineer.

**306-1.2.1.2 Bedding for Narrow Trenches.** ADD the following:

Bedding Installation for Plastic Pipe - It is important that care be taken to provide proper support under the pipe haunches and to each side of the pipe and that the pipe is not moved during the placement and compaction of the bedding material. Care shall be exercised in using granular bedding that contains significant voids. Certain silty or sandy soils near or in the bedding zone tend to migrate into these voids, particularly in the presence of groundwater. Compaction shall be performed in such a manner so that no compaction equipment is used directly above the pipe until sufficient backfill has been placed over the pipe to prevent damage. The Contractor shall provide at least 36" (900 mm) of cover over the top of the pipe before the trench is wheel-loaded and a minimum of 48" (1200 mm) of cover before utilization of a hydrohammer.

The disposal of excavated materials for performing all work required to place additional bedding shall be included in the Bid item for Additional Bedding. The Contractor shall not be entitled to compensation for disposing of rejected or excess material.

The disposal of excavated materials for performing all work required to place additional bedding shall be included in the payment for Additional Bedding. The Contractor shall not be entitled to compensation for disposing of rejected or excess material.

**306-1.2.2 Pipe Laying.** After the eighth paragraph ADD the following:

The minimum depth of cover over the installed pipe is 3'. Contractor shall install a 6-inch metallic locator tape over the top of all new non-metallic mains, sewer laterals and water services. Sewer main metallic locator tape shall be adequately bonded to sewer lateral metallic locator tape to ensure electrical continuity. Metallic locator tape shall be installed in accordance with manufacturer's recommendations.

**306-1.2.1.3 Bedding for Plastic Pipe and Fittings.** ADD the following:

CLSM shall be used for bedding and backfilling when HDPE pipe is installed in paved areas, where pipe crosses utility easement, and at locations where pipe is to be backfilled with concrete as shown on the Plans. CLSM shall conform to 201-6, "Controlled Low Strength Material (CLSM)" and the following concrete classes or as designated in the Contract Bid item or shown on the Plans:

- a) 190-E-400 in residential and local streets.
- b) 380-E-800 in major and arterial streets.

The concrete backfill shall be placed in the trench against undisturbed material at the sides and bottom of the trench and in a manner that will prevent floating or shifting of the pipe,

and voids in, or segregation of, the concrete. Foreign material which falls into the trench, prior to or during placing of the concrete, shall be immediately removed. Where necessary, earth plugs shall be constructed and compacted at the ends of the planned concrete backfill to contain the concrete within the trench.

The surface of the concrete backfill shall be broomed with a heavy broom to produce a uniform rough surface if asphalt concrete is to be placed directly thereon.

No material shall be placed on top of the concrete backfill until 8 hours after placing the concrete backfill.

**306-1.2.12.1 General.** DELETET the notes associated with Table 306-1.2.12.1(A) and SUBSTITUTE with the following:

1. 30 days after Installation and prior to paving.
2. Deflections of up to 6.5 percent of the in-field measured diameter are acceptable for storm drain applications.
3. Inward bell shaped deflection in the pipe barrel shall not be allowed.
4. Deflection tests shall not be performed sooner than 30 days after completion of placement and compaction of backfill. The pipe and fittings shall be cleaned and inspected for offsets and obstructions prior to testing.

**306-1.2.13 Installation of Plastic Pipe and Fittings.** ADD the following:

Plastic pipe and fittings shall be placed as shown on the Plans or and specified in the Special Provisions Specifications, be bedded in conformance with 306-1.2.1.3, "Bedding for Plastic Pipe and Fittings."

Connections of plastic pipe and fittings to a manhole shall be watertight. The use of manhole water stops shall be approved by the Engineer. Water stops shall be installed in conformance with the manufacturer's recommendations. The manufacturer's recommendations shall be approved submitted to the Engineer in accordance with 2-5.3, "Submittals." Junctions connecting any pipe or fitting to a plastic pipe shall utilize a "wye" fitting. "tee" connections will not be permitted on any plastic pipe. Pipe may be used on curves only if approved deflection fittings or couplings are used, or by bending if solid wall pipe is bent without any application of heat. If deflection fittings or couplings are proposed for use on curves, the proposed alignment and method of joining shall be submitted to the Engineer in accordance with 2-5.3, "Submittals." Solid wall pipe proposed for use on curves shall be bent in accordance with the manufacturer's recommendations. The manufacturer's recommendations shall be submitted to the Engineer in accordance with 2-5.3, "Submittals." The minimum centerline radius to be achieved by bending solid wall pipe shall be based on the pipe diameter, dimension ratio (ratio of the OD to the minimum wall thickness) and the manufacturer's recommendations.

The following installation requirements apply to the use of HDPE pipe:

- a) Pipe shall be installed in accordance with ASTM D2321, these specifications, and the manufacturer's specifications. In the case of a discrepancy, the more restrictive requirements shall govern.

- b) Pipe shall be laid in a trench excavated to the lines and grades established by the Engineer. The bottom of the trench shall be graded and prepared to provide a firm and uniform bearing throughout the entire length of the pipe.
- c) The minimum horizontal clearance shall be 5' as measured from the outside diameter-to-outside diameter.
- d) Pipe, pipe couplings, and accessories shall be unloaded, stockpiled, hauled, distributed, and otherwise handled in a manner which will prevent damage to the materials.
- e) Special care shall be taken to install pipe to exact grade and line. Pipe, when jointed, shall form a true line of flow. Any pipe that has a grade or joint disturbed after installation shall be removed and reinstalled.
- f) Pipe shall be installed with the separate sections joined firmly together, with outside laps of circumferential joints pointing upstream, and the center line of the invert coinciding with the specified alignment of the pipe.
- g) The interior surfaces of pipes shall be thoroughly cleaned of foreign matter before being lowered in the trenches and shall be kept clean during laying operations.
- h) Pipe shall be laid and jointed in accordance with generally accepted practice and the following provisions in order to be suitable for the purpose intended.
- i) Necessary facilities shall be provided for lowering and properly placing the sections of pipe in the trench.
- j) Pipe shall be laid to line and grade with the sections closely jointed.
- k) Every precaution shall be taken to prevent flooding the pipe trench before backfilling operations.
- l) The last two standard pipe sections at each opening shall be reinforced concrete pipe (RCP) installed in accordance with manufacturers' requirements. In the case of a discrepancy, the more restrictive requirements shall govern.
- m) New plastic pipe shall be connected to existing or new drainage facilities as shown on the Plans. When concrete collars or "tee" connections are required to connect new plastic pipe to existing or new pipe, the concrete collars or "tee" connections shall be constructed of minor concrete conforming to the provisions in Caltrans Standard Specifications, Section 90-10, "Minor Concrete." Reinforcement for the concrete collars or tees shall conform to the provisions in Caltrans Standard Specifications, Section 52, "Reinforcement."

**306-1.2.2 Pipe Laying.** ADD the following:

Where applicable, in domestic water Projects, valves shall be flanged to "crosses" and "tees."

After the eighth paragraph ADD the following:

The Contractor shall install a 6-inch metallic locator tape over the top of new non-metallic mains, sewer laterals, and water services. Sewer main metallic locator tape shall be

adequately bonded to sewer lateral metallic locator tape to ensure electrical continuity. Metallic locator tape shall be installed in accordance with manufacturer's recommendations.

Where applicable, in domestic water Projects, valves shall be flanged to crosses and "tees".

**306-1.2.4 (b) Tongue and Groove Self-Centering Joints.** DELETE the third and fourth paragraphs and SUBSTITUTE with the following:

Pipes used on curves shall have one or both ends beveled, or shall be pulled to provide a smooth curve. One side of the joint shall be tight and on the opposite side the tongue and groove may be opened to have a minimum overlap of ¼" (6 mm). The resulting space shall be filled with Class "C" mortar for the full thickness of the pipe wall. When the opened joint overlaps less than ¼" (6 mm), a pipe collar in accordance with San Diego Regional Standard Drawing D-62, "Pipe Collar" shall be provided.

**306-1.2.6 (d) Flanged Joints and (e) Mechanical Joints.** ADD the following to both subsections:

Nuts and bolts shall be protected from corrosion by a protective coating as approved by the Engineer.

**306-1.2.12 Field Inspection for Plastic Pipe and Fittings.** To the third paragraph, DELETE the first sentence and SUBSTITUTE the following:

Deflection tests shall be performed not sooner than 30 days after completion of placement and densification of backfill and prior to the placing of permanent pavement.

**306-1.3 Backfill and Densification.** ADD the following:

Upon completion of the required bedding, the trench backfill shall be placed and mechanically compacted. Trench backfill shall be placed in a number of lifts (not to exceed those limitations in 306-1.3.2, "Mechanically Compacted Backfill") necessary to obtain 90% relative compaction, and 95% relative compaction in the top foot.

Only lightweight tamping equipment shall be used within three feet (3') of pipe or appurtenances.

Where backfill material is imported and has a sand equivalent of 30 or more, it may be water consolidated by jetting. A minimum relative compaction of 90%, and 95% relative compaction in the top foot, shall be achieved and testing will be done by the City Materials and Testing Lab.

**306-1.3.1 General.** Eleventh paragraph, ADD the following:

Native material shall be unacceptable for trench backfill when:

- a) The Contractor has attempted compaction and demonstrates through testing that the soil is not compactable in the native state;
- b) is not dryable, as further required, by finding of a sand equivalent of less than 15, or more than 15% passing the 200 sieve; and
- c) when either of the following values are exceeded:

- i. Liquid Limit 50
- ii. Plasticity Index 20

The Engineer shall have the authority to require further testing when, in the opinion of the Engineer, the nature of the native material has changed in either moisture content or ability to be dried.

The Contractor will be compensated for import material and for export of unacceptable material on the basis of unit prices Bid. If no Bid item is provided, the Contractor will be compensated for import material and for export of unacceptable material in accordance with Section 3, "CHANGES IN WORK."

**306-1.3.3 Jetted Backfill.** DELETE subsection in its entirety and SUBSTITUTE the following:

Backfill material to be densified by water shall be jetted and shall have a minimum sand equivalent of 30. Jetting shall be accomplished by the use of a jet pipe to which a hose is attached, carrying a continuous supply of water under pressure. The backfill shall be jetted in accordance with the following requirements:

- a) The jet pipe shall consist of a minimum one and 1-1/2" diameter pipe to which a minimum 2" diameter hose is attached at the upper end. The jet shall be of sufficient length to Project to within 2' of the bottom of the lift being densified.
- b) The Contractor shall jet to within 2' of the bottom of the lift and apply water in a manner, quantity and at a rate sufficient to thoroughly saturate the thickness of the lift being densified. The jet pipe shall not be moved until the backfill has collapsed and the water has been forced to the surface.
- c) Backfill material shall be placed and consolidated in layers not exceeding 6' in thickness.
- d) The jetting shall be performed without softening the embankment and in a manner that excess water will not be impounded.
- e) The jetting methods shall be supplemented by the use of vibratory or other consolidation equipment as necessary to obtain the minimum specified relative compaction.
- f) The upper three 3' below finished subgrade shall be mechanically compacted in street areas.
- g) The Contractor shall make its own determination that jetting will not result in damage and any resulting damage shall be repaired at the Contractor's expense.

**306-1.3.4 Backfilling Narrow Trenches.** ADD the following:

Trench backfill shall be densified to a minimum 90% relative compaction. The final foot shall be densified to a minimum 95% relative compaction except in unimproved areas.

**306-1.3.5 Jetted Bedding and Backfill Compaction Requirements.** DELETE in entirety and SUBSTITUTE with:

Backfill in Streets and Easements - Trench backfill shall be compacted to a minimum 90% Relative Compaction except where 95% Relative Compaction shall be required by 301-1.3, "Backfill and Densification."

**306-1.3.6 Mechanical Compaction Requirements.** DELETE in entirety and SUBSTITUTE with:

Backfill in Streets and Easements - Trench backfill shall be compacted to a minimum 90% Relative Compaction except where 95% Relative Compaction shall be required by 301-1.3, "Backfill and Densification."

**306-1.3.7 Imported Backfill.** Second paragraph ADD the following:

Imported material shall have a Sand Equivalent (SE) not less than 20.

Separate payment for imported backfill will be made only when the excavation is done in heavy clay, highly expansive, or other deleterious material, and the imported backfill is ordered by the Engineer. The Engineer will determine if the excavated material is suitable for backfill.

The Bid item for Imported Backfill shall include the payment for disposal of all unsuitable trench excavated materials.

**306-1.4.4 Air Pressure Test.** Fifth paragraph, ADD the following:

For PVC sewer mains, minimum gauge pressure, test duration, acceptance requirements, and gauge certification shall be in accordance with 306-1.4.4.1, "Air Pressure Test for PVC Sewer Mainlines."

**306-1.4.4.1 Air Pressure Test for PVC Sewer Mainlines.** After laying, backfilling and compacting sewer lines, they shall be air pressure tested by the Contractor. For sewer main replacement where live laterals are connected to the new main, air pressure testing shall not be required.

The test section shall be pressurized to 3.5 psi (24.1 kPa) and shall be held above 3.0 psi (20.7 kPa) for not less than 5 minutes. Air shall be added if necessary to keep the pressure above 3.0 psi (20.7 kPa).

When the prevailing groundwater is above the pipe being tested, air pressure shall be increased 0.43 psi (3 kPa) for each foot the water table is above the invert of the pipe.

The pressure gauge used shall be supplied by the Contractor, shall have minimum divisions of 0.1 psi (0.7 kPa) and shall have an accuracy of 0.04 psi (0.3 kPa). A certified testing shall certify accuracy and calibration of the gauge firm annually or when requested by the Engineer.

At the end of the 5 minute saturation period, note the pressure shall be 3.0 psi (20.7 kPa) minimum and begin the same lapse required for air pressure drop. If the pressure drops more than 0.5 psi (3.4 kPa) in less than the time shown in Table 306-1.4.4.1 (A), the section of pipe is deemed to have failed the test.

TABLE 306-1.4.4.1 (A)

1 Pipe Dia (in/cm)	2 Min Time (min:sec)	3 L for Min Time (ft/m)	4 Time For ADD'l L(sec)	Specification Time for Length (L) Shown (min sec)							
				100 ft. 30.5 m	150 ft. 45.7 m	200 ft. 61.0 m	250 ft. 76.2 m	300 ft. 91.4 m	350 ft. 106.7 m	400 ft. 121.9 m	450 ft. 137.2 m
4/ 10.16	1.53	597/ 181.97	0.190 x L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6/ 15.24	2.50	398/ 121.31	0.427 x L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8/ 20.32	3.47	298/ 90.83	0.760 x L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10/ 25.40	4.43	239/ 72.85	1.187 x L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12/ 30.48	5.4	199/ 60.66	1.709 x L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
15/ 38.10	7.05	159/ 48.46	2.671 x L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18/ 45.72	8.30	133/ 40.54	3.846 x L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21/ 53.34	9.55	114/ 34.75	5.235 x L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24/ 60.96	11.20	99/ 30.18	6.837 x L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27/ 68.58	12.45	88/ 26.82	8.653 x L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	46:54
30/ 76.20	14.10	80/ 24.38	10.683 x L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
33/ 83.82	15.35	72/ 21.95	12.926 x L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57
36/ 91.44	17.00	66/ 20.12	15.384 x L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23

For larger diameter pipe use the following formula: Minimum time in seconds = 1.2 x diameter in mm.

**306-1.4.5 Water Pressure Test.** ADD the following:

Testing of the completed pipeline shall be performed in sections between test bulkheads after all anchors and appurtenances have been installed, and backfilling completed. The Contractor shall install the test bulkheads at locations approved by the Engineer.

Test pressure at the lowest elevation shall be one hundred and 150% of pipe pressure classification and no less than 100% of pipe pressure classification at the highest elevation.



For pressure PVC pipe and fabricated fittings sizes 4" through 12" Pressure Class C900-07 the test pressure at both low and high elevations shall be minimum one hundred percent (100%) of pipe pressure classification.

Side outlets valves to be furnished with blind flanges shall be tested uncovered to allow visual inspection for valve leakage during the required field hydrostatic test.

An Optional Field Hydrostatic Test may be permitted by the Engineer. The duration of the test and the maximum leakage permitted shall be as stated below:

- a) Duration: Pumping Discontinued 1 hour
- b) Leakage: The Contractor shall provide accurate means for measuring the quantity of water lost. To be acceptable, the rate of loss of water shall not exceed fifteen gallons per inch diameter, per mile of pipeline, in accordance with 24- hours.

In the event that the rate of loss of water during either test method exceeds the acceptable rate, the Contractor shall locate the leaks and perform the required repairs. Regardless of the outcome of the test, all detectable leaks shall be repaired by the Contractor at its own expense. Additional test shall be performed until a satisfactory test has been completed. The connections to existing pipelines shall be tested at line pressure after refilling the existing pipelines. The Contractor shall repair all leaks in the connections which occur as a result of these operations.

No leakage is allowed for steel (flanged or welded) and ductile iron (flanged) pipe.

The allowable leakage shall be 15 gallons per inch (2.25 liter per mm) of diameter per mile of pipeline in accordance with 24 hours.

**ADD: 306-1.4.7 Disinfection.** New water mains shall be disinfected in accordance with AWWA C 601 and State Health Department requirements. The City will perform a chlorine residual test prior to flushing and a bacteriological test after flushing. No main shall be placed in service until the results of the bacteriological tests are announced as satisfactory.

Newly installed water mains and appurtenances shall be disinfected and field tested by the Contractor in accordance with the following standards and supplementary details:

<u>Standard or Supplement</u>	<u>Detail</u>
Disinfection of Water Main	AWWA Standard C-601-(latest edition).
Flushing Location	Preliminary and final flushing shall be done at the ends of mains which have been hydrostatically tested.
Temporary Blowoffs	The Contractor shall provide temporary blowoffs that are needed in excess of permanent blowoffs and fire hydrants shown on the plans.
Flushing Velocity	Preliminary and final flushing shall be in accordance with AWWA Standard Section 5.2.2.
Form of Chlorine	Chlorine shall be supplied from liquid Chlorine or hypochlorite in accordance with AWWA Standard Section 2.

Method of Application	The chlorine application shall be in accordance with Section 5 of the AWWA Standard.
Chlorine Concentration	Chlorine shall be applied to the main in sufficient quantity to obtain residual chlorine content between 50 mg/l and 100 mg/l.
Chlorine Residual Tests	The City will make 24-hour chlorine residual tests in accordance with Section 5.2 of the AWWA Standard. The City will notify the Contractor of the chlorine test result.
Final Flushing	Final Flushing in accordance with Section 6 of the AWWA Standard shall be done by the Contractor after he has been notified of a satisfactory chlorine residual test by the City.
Bacteriological Tests	City Forces will take water samples for bacteriological tests in accordance with Section 7 of the AWWA Standard.
Repetition of Procedure	The disinfection testing procedure shall be repeated if the initial tests fail to produce satisfactory results. Two consecutive satisfactory test results shall be required after any unsatisfactory test. The tablet method shall not be used for repeated disinfection.
NTP	The City will notify the Contractor of test results and request the Contractor to coordinate for the connection of new main to the water system as stated on the plans.
Disinfection of Connections	Pipe and appurtenances used to connect the newly installed water main shall be disinfected in accordance with Section 9 of the AWWA Standard.
Bacteriological Sampling	No hoses or fire hydrants shall be used in collecting samples. Contractor shall have all curb stops and blowoff assemblies exposed for flushing and sampling.
Neutralizing of Chlorinated Water	Neutralizing and disposing of chlorinated water shall be in accordance with Appendix "B" of AWWA Standard C-601-(latest edition).

A copy of AWWA Standards is available for review in the Engineering and Capital Projects Department's library; contact Project Manager to schedule an appointment.

**ADD: 306-1.4.8 Televising Sewer Mains and Storm Drains.** The Contractor in cooperation with the Engineer shall televise the new sewer mains. New sewer mains shall be inspected by closed circuit television after completion of trench backfill and finished grading.

- a) It shall be the Contractor's responsibility to provide a record log of the TV inspection in accordance with 306-1.4.8.4, "Documentation of Televising." The Contractor shall review the videotapes for any discrepancies and or deficiencies in the installation of the pipe and submit a written list of all deficiencies including proposed repairs to the Engineer prior to the City's review of the video tapes.
- b) The City reserves the right to re-televising any new sewer main after the placement of pavement of permanent trench resurfacing, but before final acceptance by the City, to determine the existence and extent of any foreign material or obstructions such as, but not necessarily limited to, cement grout, wood, rocks, sand, concrete, or pieces of pipe, and any structural deficiencies, or sags precipitated by the permanent resurfacing operations or other Contract work.
- c) The Contractor shall notify the Engineer 30 Working Days in advance of the anticipated date that final acceptance will be requested. If the specified advance notice is not given, final acceptance and bond release may be delayed.
- d) 10 Working Days shall be allowed for the City Forces to review each individual video disc of each and every sewer main documented on that particular videodisc. In the event that any deficiencies or sags are discovered by the Engineer or the City Forces, either by the Contractor's televising or the City's re-televising, 5 Working Days shall be allowed for the City Forces to judge whether the deficiencies or sags are repairable, in place. If the judgment is made that the deficiencies or sags are non-repairable in place, the affected portion(s) shall be reconstructed in accordance with 6-8, "COMPLETION, ACCEPTANCE, AND WARRANTY."
- e) The Contractor shall not be entitled to any additional Working Days due to delays resulting from the need to correct any deficiencies or sags, either repairable or non-repairable, in place, as determined by televised inspections.
- f) Digital Video Files:
- g) Reference to videotape in the Contract Documents is substituted with video disc.
- h) The Contractor shall provide all video (with audio) in digital file format on DVD's.
- i) The Contractor shall provide an initial submittal at the start of televising work demonstrating the typical video and audio quality to be provided for approval by the City. This submittal shall note any proposed changes to the specification listed below regarding video format, data processing, compression or other condition for review and approval by the City.
- j) One file shall be provided for each manhole to manhole pipe segment (or for each manhole to manhole inspection video).
- k) The filename shall incorporate the unique facility identifier (to be provided by the City) and the date of the inspection. The facility identifier numbers will be manhole numbers, with adjacent manhole numbers identifying pipe sections. The facility identifier number(s) shall be compatible with the data input features of the reporting software (i.e. number of available input digits and/or fields).
- l) The camera source image capture shall provide a high resolution image with a minimum of 240 x 352 pixels capture. The video shall be at 30 frames per second.

- m) The video will be captured and compressed so as to reduce file size as much as possible while still meeting the needs of the City. The compression shall be in accordance with MPEG-1 format. The video files shall be highly compressed, resulting in an anticipated average file size of 10 MB per minute of video.
- n) The compression shall not significantly degrade the still frame quality of the video or audio signal from the original source video, as judged in a side by side viewing under normal viewing conditions.

**306-1.4.8.1 General.** The video operator shall have at least 1 year of experience with a project of a similar nature within the recent past.

- a) Videotapes shall be high quality COLOR in VHS format and recorded in either SP or LP modes. Recordings made in SLP or EP modes are not acceptable. Any out-of-focus video recording or portions thereof, shall be cause for rejection of the video recording and will necessitate re-televising.
- b) Engineer shall be notified a minimum of 2 Working Days in advance of televising. The entire televised inspection process shall be done in the presence of the Engineer.
- c) Televising shall be done in one direction for the entire length between manholes; each section shall be isolated from the remainder of the sewer line or storm drain as required. Sufficient water shall be supplied to cause drainage within the isolated section prior to televising.
- d) For underground sewer or storm drain conduit installations, the maximum operational tolerance for sag shall be 1/2". When televised inspection is used to check for sag, a calibrated 1/4" diameter steel bar, mounted in front of the camera, shall be used to measure the depth of sag.
- e) The Contractor shall not be entitled to any additional Working Days due to delays in securing the videotaping services of a private vendor.

**306-1.4.8.2 Equipment for Televising.** Televising equipment shall include the television camera, television monitor, cables, power source, lights and other equipment necessary to the televising operation. The camera shall be specifically designed and constructed for operation in connection with sewer or storm drain inspection. The camera shall be self-operative in 100% humidity conditions. Focal distance shall be adjustable through a range of from 1 inch (25 mm) to infinity. The camera shall be self propelled or mounted on skids suitably sized for each pipe diameter to be investigated. Lighting for the camera shall minimize reflective glare. Camera and lighting quality shall be suitable to provide a clear, continuously in-focus picture of the entire inside periphery of the sewer pipe or storm drain for all conditions encountered during the work. The remote reading footage counter shall be accurate to within 0.5% over measured distance of the particular section being inspected and shall be displayed on the television monitor. The camera, television monitor and other components of the video system shall be capable of producing a minimum 350 line resolution color video picture. The equipment shall be capable of televising the entire length in one direction. When televising storm drains the camera shall be capable of scanning the joints for 360 degrees.

**306-1.4.8.3 Televising Procedures.** The camera shall be moved through the line at a uniform rate, stopping when necessary to ensure proper documentation of the condition of the sewer line but in no case shall the television camera be pulled at a speed greater than 30' (9 meter) per minute. Manual winches, power winches, TV cable and powered rewinds or other devices that do not obstruct the camera view or interface with proper documentation of the sewer line or storm drain conditions shall be used to move the camera through the sewer line or storm drain.

If, during the televising operations, the television camera will not pass through an entire manhole section or storm access point section, the Contractor shall reset the equipment in a manner so that the inspection can continue opposite the obstruction. If the television camera encounters an obstruction within a section not accessible to a manhole or storm drain access point, the Contractor shall remove the obstruction by excavation or other appropriate means, replace whatever pipe is necessary, and re-televising the entire section.

Whenever non-remote powered and controlled winches are used to pull the television camera through the line, telephones, radios, or other suitable means of communication shall be set up between the two manholes or storm drain access points of the section being inspected to ensure that adequate communications exist between members of the crew.

The importance of accurate distance measurements is emphasized. Measurement for location of defects shall be above ground by means of a meter device. Marking on the cable, or the like, which would require interpolation for depth of manhole or storm access points, will not be acceptable.

The accuracy of the measurement meters shall be checked daily by use of a walking meter, roll-a-tape, or other suitable device. Footage measurements shall begin at the centerline of the upstream manhole or storm drain access point, unless permission is given by the Engineer to do otherwise. Footage shall be shown on the video data view at all times.

**306-1.4.8.4 Documentation of Televising.** Audio and written documentation shall accompany all video tape(s) submitted to the Engineer.

The voice recording of the video tape(s) shall make brief but informative comments on data of significance, including, but not limited to, the locations of unusual conditions, type and size of connection, collapsed section, the presence of scale and corrosion, and other discernible features.

The video tape(s) shall include the following:

- a) Data View
- b) Report No.
- c) Date of TV inspection.
- d) Upstream and downstream manhole, storm drain access point or station numbers.
- e) Current distance along reach (tape counter footage).
- f) Printed labels on tape container and tape cartridge with location information, date format information, and other descriptive information.

Audio

- a) Date of TV inspection.

- b) Confirmation of upstream and downstream manhole, storm access point or station numbers.
- c) Description of pipe size, types and pipe joint length.
- d) Description and location of each defect.
- e) Description and location of each service connection.

### Written

- a) Date of TV inspection.
- b) Tape number.
- c) Location, size, type, and length of pipe.
- d) Direction of flow and measurement ("From" manhole/storm drain access point/station number "To" manhole/storm drain access point/station number).
- e) Tape counter numbers (beginning and end).
- f) Sketch showing the street and cross streets where the TV inspection was made.
- g) Description and location of each defect.
- h) Description and location of each connection.

**306-1.4.8.5 Payment for Televising.** If a Bid item has not been provided for televising sewer mains and storm drains by the Contractor, televising shall be included in the cost per foot of pipe installed.

**306-1.4.8.6 Payment for Cleaning and Televising of Existing Sewer Mains.** The Contractor shall televise the existing sewer mains in advance of the construction of the new sewer mains. The locations of existing laterals that are shown on the plans are approximate. Televising shall be done in accordance with these specifications. The Contractor shall provide the televising video tape(s) and a red-lined set of plans showing the location of the existing laterals to the Engineer before constructing the new sewer mains. The unit price bid for televising the existing sewer mains shall be full compensation for furnishing all labor, materials, tools, equipment, and cleaning for the camera to pass through. No additional payment will be made.

**ADD: 306-1.4.9 Balling Sewers.** Prior to acceptance by the Engineer, the Contractor shall prove all new sewer mains are clear of obstructions. The Engineer shall require the Contractor to Wayne ball the sewer main in their presence.

**ADD:306-1.4.10 Sewer Lateral Replumbing Test.** The Contractor shall ensure that all sewer laterals have been successfully connected to the new sewer mains and that water tight capping or plugging has been completed before abandoning any existing sewer mains. The Contractor shall plug the existing sewer main that is identified on the plans to be abandoned, at a downstream location approved by the Engineer and monitor it for a 48-hour period to ensure that there is no flow in the existing main. If there is flow in the existing main, then the Contractor shall perform dye pack testing to determine which lateral remains connected and repeat the 48-hour test once it is replumbed. Payment for plugging and monitoring of existing mains until there is no flow shall be included in the Bid item for new sewer main.

**306-1.5.1 Temporary Resurfacing.** ADD the following:

Temporary trench resurfacing and subgrade shall be compacted with 1½ Ton roller. Trench plating shall not be allowed for more than 24 hours at any location.

Payment for Temporary Resurfacing shall be included in the unit price Bid for Temporary Resurfacing and no additional payment shall be made.

**306-1.5.2 Permanent Resurfacing.** DELETE in its entirety and SUBSTITUTE the following:

Surface improvements damaged, displaced or removed as a result of the Contractor's operation shall be restored by the Contractor according to the City of San Diego Standard Drawings SDG-107, "Trench Resurfacing for Asphalt Concrete Surfaced Streets" and SDG-108, "Trench Resurfacing for PCC Surfaced Streets".

Subgrade for trench resurfacing shall conform to 301-1, "Subgrade Preparation" and the pavement reconstruction shall comply with the applicable provisions of Section 302, "Roadway Surfacing."

A paving machine or spreader box shall be used to place the Class "F" asphalt concrete wearing surface, followed immediately by a roller. Resurfacing shall be completed within a maximum of 30 days after traffic is restored.

The Contractor shall repair existing asphalt pavement that has been gouged, marred or scarred during construction. The repair shall consist of asphalt patching, seal and sand, or both or as directed by the Engineer.

Unless otherwise provided for in the Bid Proposal, payment for trench resurfacing, repairs and replacement for all surface improvements damaged, displaced or removed as a result of the Contractor's operation, shall be included in the price per lineal foot of pipe, and no additional payment will be made for this work.

The Contractor shall be responsible for removal and replacement of all permanent paving damaged due to exposition, repair and replacement of the pipe which has failed testing. The Contractor shall not be entitled to any additional Working Days due to delays resulting from removal and replacement of permanent paving due to test failure.

**306-1.6 Basis of Payment for Open Trench Installations.** Second paragraph, REVISE to read as follows:

The price per linear foot for pipe and conduit in place shall be considered full compensation for all wyes, tees, bends, monolithic catch basin connections, and specials shown on the plans; the removal and/or restoration of Interfering portions of existing sewers, storm drains, and existing improvements as shown on plans; the closing or removing of abandoned conduit and structures; the excavations of the trench; the control of ground and surface waters; the preparation of subgrade; placing, joining and testing pipe; backfilling the trench; disposal of excess excavation; temporary resurfacing when not a Bid item; permanent resurfacing, and all other work necessary to install the pipe or conduit, complete in place.

Third paragraph, after the word "backfill" ADD: "disposal of all excess excavation,"

ADD the following:



Unless otherwise provided for in the Bid Proposal, payment for removal of existing sewer mains and manholes, where required by the new trench excavation, or where shown on the plans, shall not be paid separately, and shall be included in the price bid for sewer mains.

Payment for plugging and abandoning of mains and drains shall be included in the Bid item for mains and drains.

Full compensation for constructing the sewer, water, and storm drain systems, complete, as shown on the plans and in accordance with these Specifications and all incidental work thereto, shall be included in the price bid for sewer mains, water mains and storm drains excepting therefrom those other items specifically included in the Bid.

The payment for thrust blocks and anchor blocks shall be included in the Bid item for water main.

**ADD: 306-1.6.1 Additional Pavement Removal and Disposal.** Payment for the removal and disposal of existing pavement beyond 9" thick, within the trench limits defined by the City Standard Drawings, shall be included in the Bid item for Additional Pavement Removal and Disposal, and no additional payment shall be made regardless of the total thickness and composition of existing pavement removed and disposed. Payment for existing pavement removal and disposal of up to nine 9" thick, within the trench limits as defined by the City of San Diego Standard Drawings, shall be included in the Bid item for installation of the mains.

**ADD: 306-1.7 House Connection Sewer (Laterals) and Cleanouts.** Such a connecting sewer is commonly known as a sewer lateral or sewer service lateral and may be so identified.

Live laterals shall be replaced with new laterals and shall include a cleanout at property line. Plans show the approximate location of the lateral. Connections shall be made using a "wye" cut-in. Saddle connections are not permitted.

1 lateral and cleanout shall serve the homes or buildings for only 1 lot. In the event 2 or more lots are served by the same lateral, the Contractor shall provide each additional lot with its own lateral and cleanout.

If the "wye" is in the public right-of-way, each lot shall be reconnected to a new and separate lateral and shall include separate cleanouts. If the "wye" is out of the public right-of-way, the lots shall be reconnected to a new lateral with a cleanout. A stub-out with a cleanout shall be provided to the property line for future reconnection. Locations of all laterals and cleanouts shall be recorded in accordance with 2-5.4, "Red-lines Drawings."

Lateral records are available to the Contractor for inspection at Water Department, Water Operations Division, (619) 527-7482.

If the proposed sewer main alignment is in a different location than the existing main or the proposed laterals are at a different angle than the existing laterals, the Contractor shall locate the laterals by using a remote locating device, potholing existing laterals to be connected to the new sewer main, or both.

New laterals shall be perpendicular from the new sewer main. The Contractor shall determine the exact location of the lateral at the property line prior to the installation of the new main and install the corresponding wyes at these locations.

Replacement laterals shall be the same size as the existing; the minimum diameter for a lateral and cleanout is 4".

Laterals shall be enclosed in 3/8" crushed rocks envelope in accordance with the City of San Diego Standard Drawing SDS-110, "Pipe Bedding and Trench Backfill for Sewers Type "C"."

Cleanouts shall be in accordance with the City of San Diego Standard Drawings SDS-102, "Sewer Lateral Cleanout (in Driveway, Paved Alley, Sidewalk, or Other Area Subject to Traffic)" and SDS-103, "Sewer Lateral Cleanout Outside Traveled Way".

Cleanouts outside the traveled areas shall be enclosed in 6" diameter round concrete enclosure with concrete cover. Cover shall be marked "SEWER".

A vertical drop to connect an existing lateral to a new sewer main shall not be permitted unless specified on Plans. Concrete base shall be required only for a Vitrified Clay Pipe lateral if the vertical drop is 6' or greater. Concrete base shall not be required for PVC or ABS laterals.

**306-1.7.1 Lateral Construction.** Connections shall be made using a "wye" cut-in. Saddle connections are not permitted. The Contractor shall ensure that sewer laterals have been successfully connected to the new sewer mains and that water tight capping or plugging has been completed before abandoning any existing sewer mains. The Contractor shall plug the existing sewer main that is identified on the Plans to be abandoned, at a downstream location approved by the Engineer.

1 lateral and cleanout shall serve the homes or buildings for only 1 lot. In the event 2 or more lots are served by the same lateral, the Contractor shall provide each additional lot with its own lateral and cleanout.

If the "wye" is in the public right-of-way, each lot shall be reconnected to a new and separate lateral and shall include separate cleanouts. If the "wye" is out of the public right-of-way, the lots shall be reconnected to a new lateral with a cleanout. A stub-out with a cleanout shall be provided to the property line for future reconnection. Locations of all laterals and cleanouts shall be recorded in accordance with 2-5.4, "Red-lines Drawings."

Lateral records are available to the Contractor for inspection at Water Department, Water Operations Division: (619) 527-7482.

If the proposed sewer main alignment is in a different location than the existing main or the proposed laterals are at a different angle than the existing laterals, the Contractor shall locate the laterals by using a remote locating device, potholing existing laterals to be connected to the new sewer main, or both.

New laterals shall be perpendicular from the new sewer main. The Contractor shall determine the exact location of the lateral at the property line prior to the installation of the new main and install the corresponding wyes at these locations.

Replacement laterals shall be the same size as the existing; the minimum diameter for a lateral and cleanout is 4".

Laterals shall be enclosed in 3/8" crushed rocks envelope in accordance with the City of San Diego-Standard Drawing SDS-110, "110 Pipe Bedding and Trench Backfill for Sewers Type "C"."

Cleanouts shall be in accordance with the City of San Diego-Standard Drawings SDS-102, "Sewer Lateral Cleanout (in Driveway, Paved Alley, Sidewalk, or Other Area Subject to Traffic)" and SDS-103, "Sewer Lateral Cleanout Outside Traveled Way."

Cleanouts outside the traveled areas shall be enclosed in 6" diameter round concrete enclosure with concrete cover. Cover shall be marked "SEWER".

A vertical drop to connect an existing lateral to a new sewer main shall not be permitted unless specified on Plans. Concrete base shall be required only for a Vitrified Clay Pipe lateral if the vertical drop is 6' or greater. Concrete base shall not be required for PVC or ABS laterals.

The Contractor shall monitor it for a 48-hour period to ensure that there is no flow in the existing main. If there is flow in the existing main, Contractor shall perform dye pack testing to determine which lateral remains connected and repeat the 48-hour test once it is replumbed.

**306-1.7.2 Payment.** The payment for constructing new laterals and cleanouts shall be included in the Bid item for Service Lateral." Payment for plugging, monitoring, and testing shall be included in the Bid item for new sewer main.

**306-1.7.3 Sewer Lateral with Private Replumbing.** Where sewer laterals with private replumbing are shown on the Plans, the Contractor shall install a new sewer lateral and new private sewer pipes and connect the new pipe to the private house plumbing. The Work shall be performed by a qualified licensed contractor in accordance with current building and plumbing codes.

**306-1.7.3.1 Location.** The location and details of replumbing work shown on the Plans are approximate. The Contractor shall locate sewer laterals by using a remote locating device, potholing existing sewer laterals, or both for connection to the new sewer main. The alignment for each new connection shall be selected such that the required length of pipe and disturbance to private property are minimized.

Prior to any sewer lateral replumbing construction activity, the Contractor shall video record all pre-existing conditions of the property in accordance with 7-20, "VIDEO RECORDING OF PRE-EXISTING CONDITIONS."

**306-1.7.3.2 Permits.** It shall be the Contractor's responsibility to pay for, obtain, and get approval for any required permits for the Work to be done on private property. Submittal of the approved permits shall be a condition of Final Payment for each location.

The City has obtained the executed Replumbing agreements with the property owners for this project. A copy of the agreements may be obtained from the City's Project Manager. The Contractor shall meet with the property owner and the Engineer prior to any work and coordinate the details of the installation at each location. The Contractor shall notify the property owner a minimum of 10 Working Days before beginning Work on private property.

**306-1.7.3.3 Submittals.** Prior to any sewer lateral replumbing construction activity, the Contractor shall submit a separate Working Drawing of the new connection for each property to the Engineer in accordance with 2-5.3, "Submittals." Working Drawings shall include a Plan and profile showing existing size and type of material to be used and point of connection to the existing property plumbing. Each Working Drawing submittal shall include a written approval by the property owner.

**306-1.7.3.4 Trenchless Construction.** Trenchless methods shall be used for installation if the sewer lateral location intersects existing structures or as noted on the Plans.

- a) Pipes used for private replumbing shall be a minimum of 4" in diameter and shall conform to Section 207, "Pipe."
- b) Sewer lateral cleanouts shall be constructed in accordance with the City of San Diego-Standard Drawing SDS-102, "Sewer Lateral Cleanout (in Driveway, Paved Alley, Sidewalk, or Other Area Subject to Traffic)" at the connections to the house plumbing and at every bend on private property.
- c) The selected method shall be able to achieve sufficient grade control to install the private sewer lateral in accordance with the Plans and Specifications.
- d) The construction schedule for each replumb shall be arranged to minimize the disruption to the property owner.
- e) The Contractor shall ensure 2% fall, avoid existing utilities, foundation and maintain alignment within the property boundary while meeting the end connection. The borehole diameter shall not exceed the pipe diameter by more than 2".
- f) The Contractor's crew shall have successfully completed a minimum of two projects, using the proposed trenchless method.
- g) At the completion of the trenchless operation as-built records shall be provided for each replumb.
- h) The minimum depth of cover over the installed pipe is three feet.
- i) Minimum separation between the tunneled sewer lateral and other utilities shall be one foot.
- j) Tunneled sewer lateral replumbs shall be televised in accordance with 306-1.4.8, "Televising Sewer Mains and Storm Drains" with the following exceptions:
  - k) Contractor shall be allowed to use small hand-carried portable video televising units.
  - l) Audio report data is not required on the video.
  - m) Contractor shall flush five gallons minimum of water into the upper end of each tunneled sewer lateral replumbs before beginning the televising operation.
- n) Submittal Requirements:
  - o) The proposed method shall be submitted for approval in accordance with 2-5.3, "Submittals."
  - p) Address and schedule of sewer lateral replumbs to be tunneled.
  - q) Launch and receiving pit locations for each sewer lateral replumbs to be tunneled and shaft dimensions.

- r) Proposed drill path alignment (both horizontal and vertical) for each sewer lateral replumbs to be tunneled.
- s) Pipe physical properties and specifications. Calculations indicating that the method/process used does not exceed the allowable tensile and compression limits of the pipe.
- t) Jacking forces and factor of safety.
- u) Tunnel diameter.
- v) Minimum depth of cover for each sewer lateral replumbs to be tunneled.
- w) Construction procedure and operation sequence.
- x) A list of the completed projects and staff experience shall be included in the submittal.
- y) Tunneling equipment and grade control methods.
- z) Certification that the tunneling method shall be able to achieve the tolerances; if listed in these specifications.
- aa) If drilling fluid is used, viscosity, density, and composition of drilling fluid.
- bb) If drilling fluid is used, method of slurry containment and disposal.

**306-1.7.3.5 Payment.** The Bid unit price for the “Sewer Lateral with Private Replumbing” shall include installation of new pipe connecting each existing property plumbing to the new sewer main, trenchless construction (if required), installation of required clean outs on private property, televising, and locating and capping or plugging the existing sewer piping. It shall include removal and reinstallation of fences, irrigation, landscaping, ground cover, excavation, backfill and compaction, fittings, and permits necessary to install the new sewer lateral system, in place, and to restore private improvements to pre-bid condition.

Potholing, of utilities shown on the plans, performed for the tunneling of the replumbs shall be included in the unit Bid price for the replumbing work

**306-1.7.3.6 Private Pump Installation.** Private Pumps shall be installed when:

- a) Connection points for replumbs have been verified as stated on the Plans,
- b) Engineer has determined the elevation of the main in the street cannot be lowered and sufficient slope is unavailable to replumb a house by gravity means, or
- c) when noted on the Plans.

The Contractor shall notify the Engineer a minimum of 10 Working Days before beginning work on private pump.

**306-1.7.3.7 Payment.** Private Pump System will be paid for in accordance with the unit Bid price for Private Pump System. Permits and restoration of the private improvements to pre-bid conditions shall be included in the Bid item for Private Pump System.

**ADD: 306-1.8 Manholes.** Manholes shall be constructed without steps. Upon request, the Contractor shall provide the Engineer with a ladder or other safe and adequate means for inspection access during the course of construction and acceptance of the sewer main.

Manholes located outside of public right-of-way or in an unpaved area shall have covers locked to the frame as shown on City of San Diego-Standard Drawing SDM-4, "Manhole Cover – Locking Device".

Payment for a manhole shall be full compensation for labor and materials to construct complete in place, including, but not limited to, polymer mortar, and liner or coatings as specified. The cost of the locking device shall be included in the Contract bid item for sewer manholes.

Where a manhole is to be constructed on unstable native material, a stable base shall first be constructed with additional bedding material, in accordance with 306-1.2.1, "Bedding" to the dimensions specified in writing by the Engineer.

Payment for such additional bedding will be made as provided in 306-1.2.1, "Bedding". Where a new sewer main differing in direction is to be added to an existing manhole, the bottom of the manhole shall be rechanneled to minimize turbulence in accordance with 306-1.8.5, "Rechannel of and Connection to Existing Manholes."

The abandonment of manholes outside the new trench area is a separate bid item and shall include all labor and materials necessary to abandon the manholes in accordance with 306-5, "ABANDONMENT OF CONDUITS AND STRUCTURES."

**306-1.8.1 Polymer Mortar.** Polymer mortar shall be used at the riser joints on all manholes to create water-tight joints to resist infiltration.

The mortar shall be mixed in accordance with manufacturers specifications, but shall not exceed 5 parts sand to 1 part polymer.

Materials shall be in accordance with 201-8.4, "Polymer Mortar."

The concrete or other surfaces that are to adhere to the polymer mortar shall be free from dust, loose aggregates, oil, grease, or other contaminants.

**306-1.8.2 Plastic Liner.** When noted on the plans and/or in the Bid Proposal, all pre-cast manhole risers, including cone, shall be lined with white polyvinyl chloride sheets. Material shall be in accordance with 210-2, "PLASTIC LINER."

**306-1.8.3 Polyurethane Coating.** When PVC lined manholes and/or existing manhole reconstruction are noted on the plans and/or in the Bid Proposal all bases and exposed concrete mortar surfaces, including any remaining risers, shall be protected with a polyurethane coating.

Except as otherwise indicated in this section, manhole reconstruction shall conform to 500-2.4, "Inspection, Testing and Repair of Installed Liner System."

The lining application shall be performed only by workers certified by the manufacturers as trained and experienced with the specified material in accordance with 201-8.5, "Polyurethane Coating" method and equipment of application.

The Contractor shall demonstrate the material on a sample area, which is representative of a Site application. When approved, the sample area shall serve as a standard for further work.

The installed protective coating shall be warranted by the Contractor and Applicator to be free of defects in materials or workmanship for a period of 10 years after acceptance. Should coating show defects during this period, including but not limited to, blistering, peeling, corrosion, or erosion, the City will immediately notify the Contractor. The Contractor/Applicator shall make repairs, at no additional expense to the City, on a schedule agreed to with the City.

Payment for manhole rehabilitation/reconstruction and polyurethane/epoxy coatings shall include full compensation for furnishing labor and material in accordance with 500-2.4, "Inspection, Testing and Repair of Installed Liner System."

**ADD: 306-1.8.4 Exterior Waterproofing.** The exterior surface of all manholes located below plus seven 7' M.S.L or below ground water level shall be coated with a waterproofing agent consisting of a coal tar emulsion. The coal tar emulsion shall be Kopper-Bitumastic Super Service Black, or approved equal. The coal tar emulsion shall be applied in no less than 2 coats to achieve a total dry thickness of 25 to 35 mils. Unless listed as a bid item, costs of labor and material to apply coating shall be included in the price bid for manhole.

**ADD: 306-1.8.5 Rechannel of and Connection to Existing Manholes.** Where connections to existing sewer manholes are required, the manholes shall be broken out as necessary to accommodate the new sewer pipe and the base shall be rechanneled, as required, to allow a smooth transition between the inlet and outlet pipe. The manhole reinforcing steel shall be cut only as required to allow the connection of the new pipe.

The existing concrete surface shall be cleaned and prepared with an approved concrete epoxy adhesive prior to the connection of the new pipe and placement of concrete dry pack.

The payment for this work shall be included in the Bid item for Rechannel of and Connection to Existing Manhole and no additional payment shall be made.

**306-1.8.5.1 Drop Manhole Assembly.** Where sewer drop manhole assembly is required, the Contractor shall be responsible for drop manhole assembly in accordance with detail drawing on plans. Payment shall be in accordance with 2-6, "WORK TO BE DONE".

**306-4.1 General.** REVISE Item 2 to read:

Where soils encountered are not capable of standing unsupported from the bottom of trench to the top of the trench, or 3' above the top of pipe, whichever is greater, without any sloughing, and where soils are saturated or contain water quantities or other conditions harmful to the concrete, the Contractor shall install an alternate pipe as directed by the Engineer. The substitution of alternate pipe shall be at no additional expense to the City.

**ADD: 306-4.1.1 Inspection.** On private contract work the Contractor shall not construct CIPCP without the presence of a the City provided Registered Civil Engineer special inspector of case-in-place concrete pipe experienced in the manufacture and placement of CIPCP, for continuous inspection of the construction of the pipe. The inspection shall be certified in writing and signed by the Registered Civil Engineer. The certification is to be done on a daily basis of operation and shall include, as a minimum, the following:



- a) Confirm that a California Registered Civil Engineer who qualifies as a Soils Engineer or Geotechnical Engineer has determined and verified, in writing, the following:
- b) A minimum of 90% relative compaction exists in the pipe support area of the trench.
- c) Integrity of the trench bottom and sides is sufficient to provide necessary support to the CIPCP, as required by 306-4.1, "Cast-In-Place Non Reinforced Concrete Pipe (CIPCP)."
- d) Report on concrete mix design used, method of placing transit mix concrete, including drum revolution counts, time from mix to placement and slump as placed.
- e) Report on visual appearance of the pipe as poured for smoothness, rock pockets, if any alignment and grade.
- f) Report on curing method.
- g) Report on method and timing of backfill.
- h) Review of concrete test results and adequacy of the finished product.

**306-4.4.7 Curing.** ADD the following:

At no time will drainage be allowed within the pipe during the curing period.

**306-4.4.8 Repairing.** At the beginning of the section, ADD the following:

The Engineer shall be the sole judge as to the reparability of deficiencies.

**306-4.4.9 Rejection.** At the beginning of the section, ADD the following:

The Engineer shall be the sole judge as to whether or not the pipe shall be rejected.

**306-4.5 Backfill.** ADD the following:

Maximum height of cover over top of pipe shall not exceed fifteen 15'.

**306-5 ABANDONEMENT OF CONDUITS AND STRUCTURES.** ADD the following:

Sewer pipelines to be abandoned in place shall be concrete plugged at both ends of each pipe segment.

Sewer laterals to be abandoned shall be plugged with concrete at the property line or as located in the Site by the Engineer in the vicinity of the property unless otherwise shown on the Plans.

Manholes to be abandoned shall be completely filled with material as specified herein using an appropriate method to insure complete filling. Backfill material for abandoned manholes shall be imported in accordance with 201-8.7, "Manhole and Pipeline Abandonment Material" and used to fill all voids up to 12" from finished grade or as required in Schedule J (SDG-113). Consolidation by jetting may be used if a minimum 90% relative compaction will be obtained.

The contractor shall notify the Water and Wastewater Collection Division: (619) 654-4162, 48 hours in advance of abandonment to obtain the delivery location for salvaged manhole lids and frames.

Payment for sewer pipelines and service laterals to be plugged and abandoned in place shall be included in the Bid item for sewer mains. Payment for the abandonment of existing

manholes outside the trench area including concrete plugs shall be included in the Bid item for Manhole Abandonment. Payment for the abandonment of sewer mains with CLSM as shown on the plans shall be included in the Bid item for Sewer Main Abandonment.

**306-5.1 REMOVAL AND ABANDONMENT OF EXISTING WATER FACILITIES.** Any gate valve to be removed shall be removed entirely, together with the valve box and cover. Any gate valve to be abandoned shall be abandoned in place by removing the box cover, filling the valve box with sand, and patching the pavement.

Any existing fire hydrant which is served by a main to be abandoned shall be abandoned, together with its services, unless otherwise shown on the detail plans. Fire hydrant services to be abandoned shall be cut and plugged at least 12" below finished grade or below the top of curb, whichever is lower.

In general the existing water main shall be removed if its alignment lies:

- a) within the trench excavation for the new main, or
- b) not more than 1' outside of the standard trench width for the new main.

Where portions of the old main, services, or both are abandoned and left in place, the exposed ends of the abandoned main shall be tightly plugged with concrete and service ends shall be crimped, unless otherwise shown on the plans. Abandoned water services shall be located and shut off at the main.

Voids resulting from abandoned or removed water services meter boxes shall be filled with suitable material compacted to a relative compaction of 90% and concrete capped. For 16" and larger water main, the abandoned pipe shall be filled with sand or CLSM.

Salvaged material from the abandoned water mains and its appurtenances, except fire hydrant bodies, shall become the property of the Contractor at the time of its removal from the trench, unless otherwise specified or shown on the drawings. Such material shall not be allowed to accumulate along the line of work, but shall be removed from the area at the earliest practical time. Fire hydrant bodies shall be left at the Site and will be picked up by City Forces.

Payment for removing, plugging, and abandoning of existing water facilities shall be included in the Bid item for new water mains. Payment for the abandonment of water mains with CLSM as shown on the Plans shall be included in the Bid item for Water Main Abandonment. For 16" and larger water mains and appurtenances to be abandoned outside of the trench limits, payment shall be included in the unit price Bid item for Large Water Main Abandonment.

**306-5.1.1 Abandonment of Sewer Laterals.** The abandonment of sewer laterals shall be in accordance with 306-5, "ABANDONEMENT OF CONDUITS AND STRUCTURES." The Contractor shall ensure that sewer laterals have been successfully connected to the new sewer mains and that water tight capping or plugging has been completed before abandoning any existing sewer mains. Contractor shall plug the existing sewer main that is identified on the Plans to be abandoned, at a downstream location approved by the

Engineer. The Contractor shall monitor the abandonment for a 48 hour period to ensure that there is no flow in the existing main and/or lateral. If there is flow in the existing main, the Contractor shall perform a dye pack test to confirm the abandonment has been successfully completed.

Payment for the abandonment of sewer laterals shall be included in the linear price of sewer main.

**306-7 CURB DRAINS.** Second paragraph, last sentence, DELETE the words "and terminate 1 inch (25 mm) back of the curb face."

Second paragraph, ADD the following:

The drain pipe shall be trimmed to end flush with the face of curb.

**ADD: 306-9 FILTER FABRIC.** Filter fabric for use with underdrains, edgedrains, and permeable material blankets shall conform to the requirements in Section 213, "Engineering Fabrics". Filter fabric shall be placed in underdrain trenches when required by the plans, and shall be placed in accordance with the details shown on the plans and in accordance with 306-10, "Underdrains".

**ADD: 306-10 UNDERDRAINS.** Trenches for underdrains shall be excavated, the filter fabric placed, if required, the pipe installed and the trench backfilled with permeable material according to the dimensions and details shown on the plans. When underdrains are installed in trenches outside the subgrade area, the top 6" (150 mm) of the trench shall be backfilled, as shown on the plans, with structure backfill conforming to 300-3, "structure excavation and backfill".

Surfaces to receive filter fabric, immediately prior to placing, shall be free of loose or extraneous material and sharp objects that may damage the filter fabric during installation.

Adjacent rolls of the fabric shall be overlapped from 12" to 18" (300 mm to 450 mm).

The preceding roll shall overlap the following roll in the direction the material is being spread.

Should the fabric be damaged during placing, the torn or punctured section shall be either completely replaced or shall be repaired by placing a piece of fabric that is large enough to cover the damaged area and to meet the overlap requirement.

Damage to the fabric resulting from the Contractor's vehicles, equipment or operation shall be replaced or repaired by the Contractor at its expense.

**ADD: 306-11 PERMEABLE MATERIAL BLANKETS.** Filter fabric for use with permeable material blankets shall conform to 306-9, "filter fabric," and the following:

- a) The subgrade to receive the filter fabric, immediately prior to placing, shall conform to the compaction and elevation tolerance specified for the material involved.
- b) Filter fabric shall be handled and placed in accordance with the manufacturer's recommendations. The fabric shall be aligned and placed in a wrinkle-free manner.
- c) Adjacent borders of the fabric shall be overlapped from 12" to 18" (300 to 450 mm) or stitched. The preceding roll shall overlap the following roll in the direction the material is being spread or shall be stitched. When the fabric is joined by stitching, it

shall be stitched with yarn of a contrasting color. The size and composition of the yarn shall be as recommended by the fabric manufacturer. The stitches shall number 5 to 7 per inch (2 to 2.8 per cm) of seam.

- d) Within 24 hours after the filter fabric has been placed, it shall be covered with the planned thickness of permeable material or untreated base material as shown on the plans.
- e) During spreading and compaction of the permeable material and untreated base material, a minimum of 6" (150 mm) of such material shall be maintained between the fabric and the Contractor's equipment. Where embankment material is to be placed on the filter fabric, a minimum of 18 inches (450 mm) of embankment material shall be maintained between the fabric and the Contractor's equipment. Equipment or vehicles shall not be operated or driven directly on the filter fabric.

**306-11.1 Measurement.** The quantity of filter fabric to be paid for will be measured by the square yard of area covered, not including additional fabric for overlap.

**306-11.2 Payment.** Items of work, measured in accordance with 306-12, "MEASUREMENT," will be paid for at the Contract Price per square yard for filter fabric or in accordance with the special provisions.

**ADD: 306-12 PUBLIC NOTICE BY THE CONTRACTOR.** The Contractor shall distribute the City furnished printed notices to all occupants along streets where construction work is to be performed at least 1 week before starting work. For all work on private property, the Contractor shall contact each owner individually a minimum of 15 days prior to the work. If the work has been delayed, the Contractor shall notify residents of the new schedule of work.

**ADD: 306-13 EXISTING UTILITIES.**

Existing utilities have been located as accurately as can be determined from utility companies and office records and are shown on the construction plans.

The Contractor shall contact Underground Service Alert before trenching and shall coordinate its work with utility owners in accordance with 5-1, "LOCATION."

Where a possible at grade conflict with existing underground utilities appears on the plans, unless prior pothole information is shown, the Contractor shall determine their location prior to trenching. Grade, alignment, or both changes shall be made only if approved by the Engineer.

Except for those locations where potholes are specifically called out on the Plans and listed in the Bid Proposal, the cost shall be included in the unit price bid for the main or drain being installed.

Where existing underground utilities are undercut, particular care shall be exercised in selecting, placing, and compacting backfill material under and around such utility to assure firm support. For at least 12" all around the undercut utility, the backfill material shall have a sand equivalent of 50 and be compacted to 90% relative density.

Where, in the opinion of the Engineer, the native soil is unsuitable for supporting the undercut utility, suitable backfill material shall be used.

The Contractor shall avoid damage to water services, sewer laterals, and water and sewer mains during its trenching operation. In the event damage is done requiring new service connections, water main repairs, etc., the Contractor shall pay for repair work required to be performed by City Forces.

The Contractor is responsible for the altering, relocating, or reconstructing of portions of existing water or sewer connections which may or may not have been shown on the Plans, or not accurately shown on the plans, but which are found to interfere with the planned work. The Contractor shall contact and coordinate alteration, relocation, or reconstruction of gas, electric, cable or telephone service connections with the owner of such utilities.

Abandoned water services (stiff) not shown on the plans, but found to interfere with the progress of work, shall be paid for as a separate bid item. Abandoned services shall be shut off at the main.

**306-13.1 Support for Existing Water Mains.** Existing water mains, which are not high-lined, shall remain in service during the entire period of construction. Water mains require vertical and horizontal support at tees, crosses, bends, etc. In the event of water main failure, due to Contractor's failure to provide necessary support (vertical, horizontal, or both), the Contractor shall make immediate repairs or City Forces will do the necessary work and the Contractor will be billed for costs.

Repairs as used in this section shall include any high-lining not included in the Contract plans. Costs for labor shall be billed at the hourly rates (loaded) established pursuant to the City of San Diego Cost Allocation Plan available from the City Auditor.

**306-13.2 Payment.** Payment shall be included in the Bid item for the item of Work necessitating the utility work; except for the following:

- a) The water or sewer connections are not shown on the Plans.
- b) The water or sewer connections will interfere with the planned elevation of the new main or drain.

Upon discovery of either of the above unknown conditions, the Contractor shall immediately notify the Engineer. At the option of the Engineer, if a change of grade or alignment of the new main or drain cannot be done or is of no avail, payment will be made, when authorized, by utilizing any of the items listed in the Bid Proposal and/or as provided in 3-2.2.3, "Decrease of More Than 25 Percent" or 3-3, "EXTRA WORK."

**ADD: 306-14 WATER SERVICES.** Existing water services which in the opinion of the Engineer are too shallow, defectively aligned, excessively corroded, or which are otherwise substandard, shall be replaced. Existing services found to be other than copper or PVC shall be replaced.

The location of new water services and meter boxes shall be as directed by the Engineer in the field.

Each meter shall have its own service (unless specified otherwise on the plans).

Services, including transfers and extensions, shall be tested and disinfected in the same manner as water mains. These operations shall be performed concurrently with the testing and disinfecting of the water main, where practicable.

New water services shall be:

- a) 1" copper tubing.
- b) 2" copper tubing.
- c) 4" or 6" polyvinyl chloride.

Water services shall not be connected to thin walled pipe such as milled over all (MOA) pipe, Polyvinyl Chloride (PVC) pressure pipe, or to 4" pipe unless bronze pipe saddle is used. See approved Materials List for acceptable tapping saddles.

Corporation stops for service connections to water mains shall be placed not less than 30" on centers along which the connections are to be made. Corporation stops at the end of a capped pipe shall be a minimum of 15" away from the cap.

Water services shall be connected to water mains at the sides as shown on San Diego Regional Standard Drawing WS-01, "25mm (1") Water Service Installation" and SDW-100, "Supplement to Regional Standard Drawing ("W" Series)." Water service connections at the top of water mains are not allowed and shall not be made.

The Contractor shall be paid for the actual number of transfers, extensions or complete services installed at the unit price bid in the Proposal.

Where complete water services are to be installed by the Contractor, new water meter boxes are included in the bid price and shall be furnished and installed by the Contractor.

The Contractor is required to be careful to avoid damage to existing water services and water mains during excavation. In the event damage is done requiring new service connections, water main repairs, etc., the Contractor shall pay for any corrective or remedial work done by City Forces. Pulling of water services is not allowed on this project.

**ADD: 306-15 ADDITIONAL WATER METER BOXES.** In general, additional meter boxes shall be installed at locations, where the existing water service has not been identified to be replaced and where the existing water meter box is severely cracked and damaged. The Contractor shall not replace existing water meter boxes without written direction from the Engineer. Water meter boxes shall be replaced in accordance with the plans and specifications. Water meter boxes replaced shall be included in the Red-lines information.

Payment shall be included in the Bid item for Additional Water Meter. Water meter boxes damaged by the Contractor shall be replaced at the Contractor's expense.

**ADD: 306-16 TEMPORARY BLOWOFFS.** Caps and plugs installed by the Contractor to temporarily close the ends of new mains adjacent to points of connection shall contain two-inch (2") outlets with corporation stops. Corporation stops shall protrude free from thrust blocks and be available for use in relieving pressure in the mains prior to connecting. Caps

and outlets will be the property of the Contractor and may be claimed by him after connections are made. The Contractor shall be responsible for picking up its caps and plugs. The payment for temporary blowoffs shall be included in the Bid item for water mains.

**ADD: 306-17 PUBLIC NOTICE BY CONTRACTOR.** The Contractor shall furnish and distribute public notices in the form of door hangers on city provided format to all occupants along streets where construction work is to be performed at least 1 week before starting work. For all work on private property, the Contractor shall contact each owner individually a minimum of 15 days prior to the work. In the event the work has been delayed the Contractor shall re-notify residents of the new schedule of work.

The payment for notices shall be included in the Bid item for the mains being installed.

**ADD: 306-18 WATER MAIN.** Connections to existing mains under pressure shall be made by City Forces except where Contractor connections are specified on the plans.

The Contractor shall be responsible for installing the new water main along a line and grade to meet the existing water main.

All "tees" and "crosses" shall be flanged (except where noted otherwise).

Gate valves and butterfly valves shall be flanged onto "tees", "crosses", and bends (except where specified otherwise on the plans). Only gate valves shall be used in fire hydrant installations.

A blue reflector type road marker shall be placed in the street for each new fire hydrant in accordance with San Diego Regional Standard Drawing M-19, "Fire Hydrant Markers."

Concrete aprons are required for all fire hydrants.

**ADD: 306-19 OUT-OF-SERVICE FIRE HYDRANT MARKERS.** The Contractor shall install and maintain out-of-service hydrant markers on the large port of every newly installed fire hydrant immediately after it has been bolted in place. The Contractor shall unscrew the cap on the large port, place the marker on the port, and securely replace the cap. The out-of-service hydrant markers shall meet the following requirements:

- a) the out-of-service hydrant markers shall be disks constructed of heavy-duty plastic and shall have an inside diameter large enough to easily slide over the large port of a fire hydrant (refer to the Standard Drawings for fire hydrant installation) and a minimum outside diameter of 11 ¼."
- b) the out-of-service hydrant markers shall be a minimum of 1/16" thick
- c) the out-of-service hydrant markers shall be resistant to tearing, ripping, extreme changes in temperature and/or vandalism
- d) the out-of-service hydrant markers shall be of a highly visible color of red

It shall be the Contractor's responsibility to ensure that the out-of-service hydrant markers shall remain on the fire hydrants until the new main has been connected to the existing main and accepted by the City. Once in service, City Forces shall remove and retain the out-of-service hydrant markers.



**ADD: 306-20 BLOWOFF VALVE ASSEMBLIES.** Blowoff Valves shall be connected to the low point of the water main, at the locations shown on the construction plans.

The Blowoff Valve Enclosure shall be placed approximately at the location shown on the construction plans and in accordance with the City of San Diego-Standard Drawings. The Contractor will field verify, with the approval of the Engineer, the final location of each enclosure.

Red-lines drawings submitted by the Contractor to the Engineer shall show the location (by stationing and offsets) of all Blowoff Valves.

Payment shall be included in the various Bid items unless a pay item has been provided for Blowoff Valve Assemblies.

**ADD: 306-21 AIR AND VACUUM VALVE ASSEMBLIES.** Air Vacuum Valves shall be connected to the high point of the water main, at the locations shown on the construction plans.

The Air Vacuum Valve Enclosure shall be placed approximately at the location shown on the construction plans and in accordance with the City of San Diego-Standard Drawings SDW-117, "Air and Vacuum Valve Enclosure", San Diego Regional Standard Drawings WA-01, "50mm (2") Manual Air Valve", WA-02, "50mm (2") Automatic Combination Air Release and Air/Vacuum Valve Installations", WA-04, "100mm (4") & 150mm (6") Automatic Combination Air Release and Air/Vacuum Valve Installations", and WA-06, "Air and Vacuum Valve Enclosure Locations". The Contractor will field verify, with the approval of the Engineer, the final location of each enclosure.

As-Built Drawing submitted by the Contractor to the Engineer shall show the location (by stationing and offsets) of all Air Vacuum Valves.

Payment shall be included in the various Bid items unless a pay item has been provided for Air and Vacuum Valve Assemblies.

**ADD: 306-22 THRUST ANCHOR.** The Contractor shall be responsible for installing the thrust anchor for water main reducer - 4 thru 16-inch in accordance with the Specifications, San Diego Regional Standard Drawing WT-01, "Concrete Thrust and Anchor Block Installations" and Plans.

Payment for thrust anchor shall be included in the various Bid items unless a pay item has been provided for Thrust Anchor.

**ADD: 306-23 METER ASSEMBLY.** The Contractor shall be responsible for installing the meter assembly as shown in the detail on the Plans.

Payment shall be included in the various Bid items unless a pay item has been provided for Meter Assembly. The concrete pad, fence, gate, associated piping, and coordination with City Forces shall be included in the payment for the meter assembly.

**SECTION 307 – STREET LIGHTING AND TRAFFIC SIGNALS**

DELETE this section in its entirety and SUBSTITUTE the “1999 Standard Special Provisions for Signals, Lighting, and Electrical Systems of The City of San Diego” and the following:

Traffic Signal and Street Lighting System Restoration shall include conduit/pull box relocation, loop detector re-installation, and any other work necessary for completion of this contract. The modifications shall be in accordance with current Caltrans Standard Specifications and Standard Plans.

If no Bid item is provided in the Proposal, payment shall be included in the various Bid items.

**SECTION 308 – LANDSCAPE AND IRRIGATION INSTALLATION**

**308-2.2 Trench Excavation and Backfill.** Second paragraph, REVISE to read as follows:

Unless otherwise specified, the minimum depth of cover over pipelines and conduits shall be as follows:

- a) Electrical conduit – 18” (450 mm)
- b) Water lines continuously pressurized
- c) 3-inch (75 mm) and smaller pipe – 15’ (375 mm)
- d) 4-inch (100 mm) and larger pipe – 24” (600 mm)
- e) Lateral sprinkler lines – 15” (375 mm)

Last paragraph, last sentence, ADD the following:

Other methods of compacting backfill maybe approved by the Engineer.

**308-2.3 Topsoil Preparation and Conditioning.** RETITLE section: “TOPSOIL PREPARATION”

**308-2.3.1 General.** Third paragraph, REVISE to read: "The soil below subgrade for Class A or B topsoil shall be deep ripped in a cross pattern to a depth of 8” (200 mm). Rocks 6” (150 mm) or greater in length shall be removed from the deep ripped area. The area shall be smooth and uniform before topsoil is placed."

Last paragraph; CHANGE the word "scarified" to "deep ripped".

**308-2.3.2 Fertilizing and Conditioning Procedures.** Second paragraph, first sentence, REVISE to read as follows:

Soil amendment materials shall be uniformly spread at the prescribed rate.

Third Paragraph, first sentence, REVISE to read as follows:

After spreading, the soil amendments shall be cultivated into the upper 6” (150 mm) of soil by suitable equipment operated in at least two directions approximately at right angles.

**308-2.4 Finish Grading.** First paragraph, REVISE to read as follows:

Contours and finish grade shall provide for drainage to sheet and shall not channel drainage in a manner where volume and velocity of water will create surface erosion.

Second paragraph: CHANGE the words "one inch (25 mm)" to "1/2" (12.5 mm)".

Third paragraph, first sentence, and REVISE to read: After blending solid amendments and fertilizers into soil, soil shall be watered and allowed to settle to provide a stable base.

ADD the following:

"Finish grade shall insure positive drainage from the Site. Surface drainage shall be away from all building foundations. The Engineer shall approve the final grades and elevations before planting operations may begin."

**308-3 HEADER INSTALLATION.** DELETE second paragraph.

**308-4.1 General.** Fourth paragraph, ADD at end of sentence:

"... and finish grading."

**308-4.2 Protection and Storage.** ADD the following:

Shade loving plants, stolons and sod shall be stored in the shade or screened from the sun.

**308-4.5 Tree and Shrub Planting.** First sentence, DELETE the words:

"approximately square with vertical sides."

Second paragraph, first sentence, REVISE to read as follows:

"Containers shall be removed in such a manner that the plant root is not injured."

Third paragraph, ADD:

"The sides of the planting holes shall be scarified or roughened".

Fourth paragraph, second sentence, REVISE to read as follows:

Prepared soil mix shall consist of 20% to 40% Type 1, 2, or 3 organic soil amendments, and the remainder native soil, depending on soil conditions at each site, as specified by the City.

Fifth paragraph, DELETE parts (1) through (7) and REPLACE with the following:

- a) The bottom of the planting hole shall be scarified to a depth of 6 inches and the native soil mixed with an equal amount of soil mix.
- b) Soil mix shall be added and water compacted in the bottom of the planting hole so that the crown of the plant is one inch above finish grade.
- c) The plant shall be approximately at the center of the hole and plumb.
- d) Prepared soil mix shall be added in the hole to cover 1/2 the height of the root ball. Water shall then be added to thoroughly saturate the root ball and adjacent soil.
- e) After the water has drained, the specified number of fertilizer tablets shall be placed in the planting hole adjacent to the root ball.
- f) The Engineer shall approve fertilizer tablet placement prior to filling remainder of hole with soil mix.

- g) The backfill shall be thoroughly water settled and additional prepared soil mix added to fill any remaining void below finish grade.
- h) A circular watering basin 4" (100 mm) high shall be constructed around the plant in the following diameters:
  - a. 2' (0.6 meter) diameter for 1 gallon plant
  - b. 3' (0.9 meter) diameter for 5 gallon plant
  - c. 4' (1.2 meter) diameter for 15 gallon plant
- i) The bottom of the basin shall be at approximate finish grade or slightly lower. Specified mulch shall be spread at least 2" (50 mm) thick in the basin.
- j) The plant shall be guyed and staked in accordance with these specifications.
- k) The area around plants shall be re-graded to finish grade. The excess soil shall be disposed of by the Contractor or as directed by the Engineer.

**308-4.6.1 Method "A" Tree Staking.** First sentence, REVISE to read as follows:

The tree shall be staked with the type and length of stake specified on the plans or in the Special Provisions. The stake shall be placed at the windward side of the tree and positioned adjacent to the root ball. The stake shall be vertical and driven 12" (300 mm) into undisturbed soil.

**308-4.6.2 Method "B" Tree Staking.** First and second sentences, revise to read as follows:

The tree shall be staked with the type and length of stake specified on the plans or in the Special Provisions. One stake shall be placed 18" (450 mm) from each side of the tree trunk.

**308-4.6.3 Guying.** DELETE the first paragraph.

**308-4.7 Ground Cover and Vine Planting.** Second paragraph, ADD the following:

Soil shall be moist within the total root zone of the material being planted.

Third paragraph; CHANGE the word "flat" to "container".

Fourth paragraph, second sentence, REVISE to read as follows:

A 2" layer of the specified mulch shall be spread over the planted areas.

Sixth paragraph, DELETE second sentence.

**308-4.8.2 Seed.** REVISE as follows:

Method A - First paragraph ADD: The soil shall be moist for a depth of 6" (150 mm) before planting. If not, prior to planting the soil shall be deep watered to a depth of 8" (200 mm) and allowed to dry out to the point soil is moist and will support labor and equipment without damage or undue compaction to soil and finish grade.

Method B - Fourth paragraph, revise to read: "Areas to be planted by this method shall be moistened to a depth of 6" (150 mm)".

**308-4.8.3 Sod.** Second paragraph, second sentence, CHANGE the word "conditioning" to "preparation".

Second paragraph ADD as follows:

Sod shall be installed no more than 48 hours after cutting.

Fifth paragraph CHANGE the words "8 inches (200 mm)" to "6" (150 mm)".

**308-4.8.4 Stolon.** First sentence DELETE the words:

"and conditioning".

Second paragraph, first sentence, REVISE to read as follows:

The area to be planted in stolons shall be thoroughly irrigated to a depth of at least 6 inch (150 mm) before planting.

Second paragraph REVISE to read as follows:

The area to be planted in stolons shall be thoroughly irrigated to a depth of at least 8 inches (200 mm) before planting.

**308-4.9.1 General.** Second sentence, DELETE the words "and conditioning".

**308-5.1 General.** Fourth paragraph, REVISE to read as follows:

Utility connections shall be as shown on the plan or designated by the utility company. The Contractor shall include in its Bid, payment for such utility connections shown on the plans or designated by the utility company.

**308-5.2.1 General.** Fourth paragraph, REVISE to read as follows:

Unless otherwise specified no PVC pressure pipeline shall be installed within 3 feet (0.9 meter) of and parallel to another line."

**308-5.2.2 Steel Pipeline.** Third paragraph, REVISE to read as follows:

Joints shall be made with a non-toxic non-hardening joint compound or Teflon tape applied to the male threads only.

**308-5.2.4 Copper Pipeline.** First paragraph, ADD the following:

Copper pipe shall be Butt Square and all burrs and fins removed.

Second paragraph CHANGE, "50-50 tin-lead solder" to "40-60 tin-lead solder."

**308-5.3 Installation of Valves, Valve Boxes, and Special Equipment.** Third, fourth, fifth and sixth paragraphs REVISE to read as follows:

Valves shall be the same size as the pipeline in which they are to serve. Gate valves and sectional control valves shall be installed below ground and shall be equipped with a sleeve centered on the valve stem.

Quick-coupler valves and garden valves projecting above grade shall be 12" (300 mm) from curbs, pavement and walks. In ground cover and shrubbery areas, quick coupler valves shall be set 4 inches (100 mm) above finish grade, and garden valves shall be set a minimum of 8" (200 mm) above finish grade.

Quick couplers in lawn/turf areas shall be installed at finish grade to not over 1/2"(12.5 mm) above finish grade.

Valve boxes and pipe sleeves with caps shall be set to finish grade. Backflow preventers shall be provided with pipe supports and the accessories necessary to properly secure the assembly."

**308-5.4.2 Location, Elevation and Spacing.** Second, third, fourth and fifth paragraphs REVISE to read as follows:

In lawn areas, sprinkler heads shall be installed 1/2" (12.5 mm) above finish grade. Lawn sprinklers shall be installed 2" (50 mm) clear of adjacent walks, curbs, paving headers and similar improvements.

Sprinkler heads shall be installed a minimum of 6" (150 mm) from adjacent vertical elements projecting above grade, such as walls, planter boxes, curbs and fences.

Unless otherwise specified, shrub heads, bubbler heads and impact sprinklers shall be installed 6" (150 mm) above finish grade.

Nozzle lines Projecting above finish grade shall be at least 12" (300 mm) from adjacent curbs, walk, paving and similar improvements.

**308-5.4.3 Riser and Nozzle Line Installation.** Second paragraph CHANGE the word "oscillating" to "impact".

DELETE third, fourth and fifth paragraphs.

Sixth, seventh and eighth paragraphs, REVISE to read as follows:

Double swing joint riser assemblies shall utilize a horizontal 3" (75 mm) pipe nipple, threaded into a side outlet ell or tee installed in the lateral supply line. Three standard 90-degree elbows shall be used in the remaining assembly ahead of the vertical riser pipe.

Risers for impact sprinkler heads installed above grade shall be supported by a 1/2" (12.5 mm) galvanized iron pipe stake 30" (750 mm) long, driven into the ground and secured with two stainless steel clamps. The upper end of the pipe stake shall be 6 inches above finish grade.

When nozzle lines cannot be supported on adjacent fences, guardrails and the like, they shall be supported on driven 1/2" (12.5 mm) pipe stakes 30" (750 mm) long at 10' (3 meter) centers. The nozzle line shall be secured to the top of the stake with 3/8" (9.5 mm) anchor rings 12" (300 mm) long.

**308-5.5 Automatic Control System Installation.** Second paragraph, after first sentence, ADD the following:

Each controller shall have a power ON/OFF switch, with lock-out, tag-out capability.

Third paragraph, REVISE to read as follows:

Remote control valves shall be compatible with the automatic controller. When the valve is to be housed in a valve box, it shall be installed with at least a 4-inch (100 mm) minimum to a 6" (150 mm) maximum clearance below the cover. The box shall be set to finish grade on an un-mortared brick foundation.

Fourth and fifth paragraphs, REVISE to read as follows:

Service wiring shall be installed at the minimum depth specified in SECTION 307, "STREET LIGHTING AND TRAFFIC SIGNALS" in galvanized steel or PVC conduit from the service point to the controller. For the purpose of these specifications, service shall include all material and equipment necessary to complete the electrical connection between the terminating point of the serving utility and the irrigation controller. A separate disconnect switch or combination meter socket, as required, shall be installed between the source of power and the controller. The minimum service wire shall be No. 12 AWG copper 600 volt type TW, TWH or TWHH or larger as required by the Contract documents or controller manufacturer. Wire splices shall be located only in specified pull boxes and shall be made with a packaged kit approved for underground use. Valve boxes shall be set to grade on an un-mortared brick foundation.

Control wiring or hydraulic control tubing shall be housed in conduit between the controller and a point at least 1' outside the limits of the controller foundation, or the structure foundation where the controller is housed. Other wiring and hydraulic control tubing issuing from the conduit shall be direct burial installed in main or lateral water line trenches wherever practicable. The wiring or tubing shall be installed in the lower corner of the irrigation pipeline trench. Sufficient slack shall be left in the wiring or tubing to provide for expansion and contraction. When the control wiring or tubing cannot be installed in a pipe trench, it shall be installed a minimum of 18 inches below finish grade.

Seventh paragraph after second sentence ADD the following:

The minimum insulation resistance to the ground shall be 50 megohms. Any wiring not meeting this requirement shall be replaced.

Seventh paragraph, ADD the following:

In multiple controller installations, the common control wires shall be separate for each controller.

Eight paragraph, REVISE to read as follows:

Upon completion of the work, the control system shall be in operating condition with an operational chart mounted within the controller cabinet, including the location of the circuit breaker feeding the controller.

ADD new paragraph:

Each installed remote control valve shall be coded to its parent controller.

**308-5.6.2 Pipeline Pressure Test.** Third sentence, REVISE to read as follows:

Pressure mains shall be tested with all control valves open and outlet side of valves capped.

Fifth sentence, REVISE to read:

The constant test pressure and the duration of the test are as follows:

Mains            4 hours at 125 psi (860 kPa)

Laterals        2 hours at 100 psi (690 kPa)

**308-6 MAINTENANCE AND PLANT ESTABLISHMENT.** To the fifth paragraph, CHANGE "30 calendar days" to read "90 calendar days".

**308-7 GUARANTEE.** First sentence; DELETE the word "control".



**SECTION 309 - MONUMENTS**

**309-1 DESCRIPTION.** After the word "plans", ADD the following:

"in accordance with the Regional standard Drawings".

**309-2 Materials.** Second paragraph, REVISE to read as follows:

Monument markers shall be as approved by the City and furnished by the Contractor.

**309-3 CONSTRUCTION.** First paragraph, first sentence, and REVISE to read as follows:

Survey monuments shall be either pre-cast or cast-in-place in neat holes without the use of forms.

**SECTION 310 - PAINTING**

**310-5.6.1 General.** Last paragraph, REVISE as follows:

DELETE second sentence.

At the end of paragraph, ADD the following:

The Contractor shall within 1 Working Day or as directed by the Engineer, remove by wet sandblasting all existing or temporary traffic markings that may confuse the public and afterwards seal and sand the abraded area.

Unless otherwise specified, payment for sandblasting, sand, and seal shall be included in the various Bid items.

**SECTION 311 – SPECIAL PROTECTION MATERIALS**

**ADD: 311-2 EPOXY LINING INSTALLATION.**

**311-2.1 General.** Epoxy lining shall be applied to properly prepared surfaces, inspected and approved by the Engineer prior to the structure being placed into or returned to service.

**311-2.2 Installer Qualifications.** The installation of epoxy linings is considered specialized work requiring specialized spray equipment. Personnel performing such work shall be equipped with specialized spray equipment as set forth by the epoxy lining manufacturer and shall be adequately trained in its maintenance and operation as well as the methods of surface preparation, application and testing of the epoxy lining and shall demonstrate their ability to the Engineer prior to commencing work.

**311-2.3 Surface Preparation.** Surface preparation method(s) should be based upon the conditions of the substrate, service environment and the requirements of the epoxy lining to be applied. Surfaces to receive the epoxy lining shall be cleaned and abraded to produce a

sound surface with adequate profile and porosity to provide a strong bond between the epoxy lining and the prepared surfaces.

**311-2.4 Application of Epoxy Lining to Concrete Surfaces.** Application of the epoxy lining to concrete surfaces shall be accomplished by the following steps:

- a) Infiltration shall be stopped by using a material which is compatible and suitable for topcoating with the epoxy lining as noted in the Plans and Specifications.
- b) Repair methods and epoxy lining application shall be as noted in 500-2, "Manhole and Structure Rehabilitation" with the exception of specified thickness which shall be as noted in the Plans and Specifications.
- c) Testing shall be as noted in 500-2, "Manhole and Structure Rehabilitation."

**311-2.5 Payment.** Payment for epoxy lining materials and their installation shall be included in the price bid for the manhole, pipe or structure to which they are applied.

### SECTION 312 – PAVEMENT MARKER PLACEMENT AND REMOVAL

**312-4 MEASUREMENT AND PAYMENT.** DELETE in its entirety and SUBSTITUTE the following:

Payment for placement of temporary markers and replacement of all permanent pavement markers and striping shall be included in the other Bid items.

## PART 4

### SECTION 400 - ALTERNATE ROCK PRODUCTS, ASPHALT CONCRETE, PORTLAND CEMENT CONCRETE AND UNTREATED BASE MATERIAL

REVISE sentence in parenthesis to read as follows:

This Subsection shall apply unless Section 200, "Rock Materials" is specified.

**400-1.1.1 General.** First paragraph, ADD the following:

Recycled material when approved by the Engineer shall conform to the appropriate subsection 200. Third paragraph, after "ASTM C 131 ", ADD "or California Test 211".

Fifth paragraph, AMEND to read as follows:

Coarse aggregate is material retained on the 4.75 mm (No. 4) sieve, fine aggregate is material passing the 4.75 mm (No. 4) sieve and supplemental fine aggregate is filler material, dust from the bags of a baghouse collector or added fine aggregate (100% passing the 600 µm (No. 30) sieve).

**400-1.1.2 Source.** First paragraph, last sentence, REVISE to read as follows:

The supplier shall have on file, with the City, mix designs for PCC and Asphalt Concrete.

**400-3.1 Coarse Aggregate.** Following Table 400-3.3.1(A) ADD the following:

(ASTM C 131 Test Grading C or Alternate California Test 211.)

**400-3.2 Fine Aggregate.** Following Table 400-3.2.1(A) ADD the following:

The content of material in fine aggregate, determined as prescribed in ASTM C 117, shall not exceed 5% by weight. When tested as prescribed in ASTM C 40, the resultant color of the testing solution shall not be darker than the ASTM C 40 standard.

The fine aggregate shall have a minimum average sand equivalent of 75, as determined by at least three tests. No individual test shall have a value less than 70.

Fine aggregate shall be such that cement mortar specimens made therefrom will develop in seven days a compressive strength not less than 95% of that developed in the same length of time by specimens similarly made with Ottawa standard sand; the compressive strength of the respective mortars being considered as the average of that developed in not less than three specimens of each prepared and tested in accordance with California Test 515.

Fine aggregate may be a natural sand, manufactured sand or combination of both.

**400-2.1 General.** REVISE section to read as follows:

Materials for use as base or subbase shall be classified in the order of preference as follows:

- a) Crushed Aggregate Base
- b) Crushed Slag Base
- c) Crushed Miscellaneous Base
- d) Processed Miscellaneous Base
- e) Class 2 Aggregate Base
- f) Disintegrated Granite Base
- g) Select Subbase

**400-2.2 Disintegrated Granite.** ADD the following:

When base material without further qualification is specified, the Contractor shall supply Processed Miscellaneous Base (Fine Gradation).

**ADD: 400-2.4 Class 2 Aggregate Base.**

**400-2.4.1 General.** Aggregate for Class 2 aggregate base shall be free from vegetable matter and other deleterious substances, and shall be of such nature that it can be compacted readily under watering and rolling to form a firm, stable base.

**400-2.4.2 Grading.** The coarse aggregate (material retained on the 4.75 mm (No. 4) sieve) shall consist of material of which a minimum of 25% by weight shall be crushed particles as determined by California Test 205.

Aggregate shall conform to the grading and quality requirements shown in Table 400-2.4.2(A). At the option of the Contractor, the grading for either the 1.5" (37.5 mm) maximum or ¾" (18.75 mm) maximum shall be used, except that once a grading is selected it shall not be changed without the Engineer's written approval.

TABLE 400-2.4.2(A) Percentage Passing

Sieve Size	1-1/2" (37.5 mm) Maximum Individual Test Results	3/4" (18.75 mm) Maximum Individual Test Results
2" (50 mm)	100	-----
1-1/2" (37.5 mm)	87-100	-----
1" (25 mm)	-----	100
¾" (19 mm)	45-90	87-100
No. 4 (4.75 mm)	20-50	30-60
No. 30 (600 µm)	6-29	5-35
No. 200 (75 µm)	0-12	0-12

**400-2.4.3 Quality Requirements.** Class 2 aggregate base shall conform to the following requirements:

TABLE 400-2.4.3(A)

Tests	California Test	Individual Test
Resistance (R-value)	Calif. 301	78 Min.
Sand Equivalent	Calif. 217	30 Min.
Durability Index		35 Min.

**400-4.1 General.** Second paragraph, REVISE to read as follows:

Unless otherwise specified PG 64-10 paving grade asphalt shall be used for Type III asphalt concrete, and PG 70-10 paving grade asphalt shall be used for asphalt concrete dikes.

**400-4.2.4 Fine Aggregate.** ADD the following:

The total amount of material passing the 75 µm (No. 200) sieve shall be determined by washing the material through the sieve with water. Not less than 1/2 of the material passing the 75 µm (No. 200) sieve by washing shall pass the 75 µm (No. 200) sieve by dry sieving.

ADD the following:

Fine aggregate shall be tested for soundness in accordance with ASTM D 1073, and shall not exceed fifteen percent (15%) loss by weight.

**400-4.3 Combined Aggregates.** First paragraph, ADD the following:

ASTM D 2419 Test Method may be substituted for California Test 217.

To Table 400-4.3(C) Type III Asphalt Concrete, ADD the following class "A" gradation:

Modify the sand equivalent value in the first paragraph and in Table 400-4.3(A) of requirements in 400-4.3, "Combined Aggregates" to the values in Table 400-4.3(D).

Table 400-4.3 (C)  
Type III ASPHALT CONCRETE

Percentage Passing Sieves	
CLASS	A
SIEVE SIZE	PERCENTAGE PASSING
1-1/4 inch (31 mm)	100
1 inch (25 mm)	90-100
3/4 inch (19 mm)	75-90
3/8 inch (9.5 mm)	50-65
No. 4 (4.75 mm)	35-50
No. 8 (2.36 mm)	25-42
No. 30 (600 µm)	9-24
No. 200 (75 µm)	2-7
Asphalt %	4.6-6.0

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Fourth paragraph, REVISE table to read as follows:

Table 400-4.3 (C) TYPE III ASPHALT CONCRETE

Percentage Passing Sieves				
CLASS	B2		B3	
Sieve Sizes	Individual Test Results	Moving Average	Individual Test Results	Moving Average
1" (25 mm)	100	100	100	100
3/4" (19 mm)	87-100	90-100	90-100	95-100
1/2" (12.5 mm)	75-95	80-90	85-100	85-95
3/8" (9.5 mm)	50-80	60-75	60-84	65-80
No. 4 (4.75 mm)	30-60	40-55	40-60	45-60
No. 8 (2.4 mm)	22-44	27-40	24-50	30-45
No. 30 (600 µm)	8-26	12-22	11-29	14-25
No. 200 (75 µm)	1-8	3-6	1-9	3-7
Asphalt %	4.6-6.0		4.6-6.0	

In Table "Type III Asphalt Concrete," change percent passing sieves as follows:

Class D - Change % Passing No. 200 (75 µm) from "5 - 14" to "5-12"

ADD the following table after table 400-4.3(C):

Table 400-4.3(D) - Table of Sand Equivalent and Cleanness Values

Mix Size	Sand Equivalent (Min.)	Cleanness Value (Min.)
F	45 Individual	-----
D	45 Individual 50 Moving Avg.	55 Individual 60 Moving Avg.
C	50 Individual	60 Individual
B	50 Individual	60 Individual
A	50 Individual	60 Individual

After the last paragraph, ADD the following:

The aggregate from each separate bin for asphalt concrete, Type III, except for the bin containing the fine material, shall have a Cleanness Value as noted in Table 400-4.3(D) and as determined by California Test 227, modified as follows:

Test will be performed on the material retained on the No. 8 (2.4 mm) sieve from each bin and will not be a combined or averaged result.

Each test specimen will be prepared by hand shaking for 30 seconds, a single loading of the entire sample on a 12" (300 mm) diameter, No. 4 (4.75 mm) sieve nested on top of a 12" (300 mm) diameter, No. 8 (2.4 mm) sieve.

Where a coarse aggregate bin contains material which will pass a 3/8" (9.5 mm) sieve and be retained on a No. 8 (2.4 mm) sieve, the test specimen weight and wash water volume specified for seal coat screenings will be used.

Where a coarse aggregate bin contains material which will pass the maximum size specified and be retained on a 3/8" (9.5 mm) sieve, the test specimen weight and volume of wash water specified for one inch x No. 4 (25 mm x 4.75 mm) aggregate size will be used.

Samples will be obtained from the weigh box area during or immediately after discharge from each bin of the batching plant or immediately prior to mixing with asphalt in the case of continuous mixers. The Cleanness Value of the test sample from each of the bins will be separately computed and reported.

Plant processed native aggregates shall meet the required specified limitations prior to any additional chemical treatment. The grading of the combined aggregates shall conform to the following table for Type III, Class "D", asphalt concrete:

<u>SIEVE SIZE</u>	<u>PASSING</u>
2-Inch	100
3/8-Inch	95-100
No. 4	65-85
No 8	50-70
No. 30	28-40
No. 200	5-12
Asphalt Percentage	6.5-8.0

**400-4.4 Storing, Drying and Screening Aggregates.** ADD the following:

When the Contractor adds supplemental fine aggregate, each such supplemental fine aggregate used shall be stored separately and kept thoroughly dry.

**ADD: 400-5 PLANT MIXED CEMENT TREATED BASE.**

**400-5.1 Mineral Aggregate.** Mineral aggregate shall be free from adobe, vegetable matter and other deleterious substances and shall conform to the following requirements: The combined mineral aggregate shall be uniformly graded from coarse to fine and the



percentage composition by weight as determined by laboratory sieves, shall conform to the following grading and sand equivalent:

Passing a 1" (25 mm) sieve	90 -100
Passing a 3/8" (9.5 mm) sieve	65 - 85
Passing a No. 4 (4.75 mm) sieve	45 - 65
Passing a No. 30 (600 µm) sieve	15 - 35
Passing a No. 200 (75 µm) sieve	3 – 15
Sand Equivalent	30 minimum

**400-5.1.1 Compressive Strength.** The combined mineral aggregate shall be of such quality that when mixed with Portland Cement in a minimum amount of two percent by weight of the dry aggregate and compacted with optimum moisture content as determined by ASTM Designation D 1557, Method C, the compressive strength of samples of the compacted mixture shall not be less than 400 pounds per square inch in seven days. The compressive strength of soil cement mixtures shall be determined from specimens fabricated, cured and test as follows:

The mix consisting of aggregate, cement and water shall be compressed into a 4" diameter tin liner mounted in a split mold. The compression load shall be 2,000 pounds per square inch (13.75 megapascal) transmitted to the mixture through free moving plungers at the top and bottom of the mold. After the test specimen is removed, it shall be sealed on both ends of the tin liner and cured at room temperature for six days. On the sixth day, the specimen shall be removed from the tin liner and soaked in water for 24 hours, then capped with Plaster of Paris and tested for compressive strength.

**400-5.1.2 Soundness.** Not more than three percent of the material retained on the No. 4 sieve shall be composed of lumps or pieces of materials, which will soften and disintegrate when soaked in water for a period of 30 minutes.

**400-5.1.3 Cement and Water.** Portland Cement and water shall conform to the requirements of 201-1.2, "Materials" and 201-1.4, "Mixing."

**400-5.1.4 Curing Seal.** Bituminous material to be used as curing seal shall be penetration or mixing type asphaltic emulsion, which shall conform to and be furnished in accordance with the applicable provisions of 203-3, "Emulsion Asphalt."

**400-5.1.5 Temperature.** Aggregate, which has been put through a drier, shall not be used until cooled to a temperature of 120 °F or less.

**400-5.2 Proportioning**

**400-5.2.1 Cement Treated Base Aggregates.** The aggregates for cement treated base shall be separated into at least two sizes and each size shall be stored separately. One storage facility shall contain aggregate retained on a No. 4 (4.75 mm) sieve of which not more than 20% shall be finer than a No. 4 (4.75 mm) sieve. The other storage facility shall contain aggregate of which at least 80% is finer than the No. 4 (4.75 mm) sieve. If aggregates are separated into more than 2 sizes, any combination of sizes approved by the Engineer that will meet the grading and other test requirements will be acceptable.

**400-5.2.2 Cement.** Cement delivered in sacks from commercial producers will be assumed to weigh 94 pounds (42.5 Kilo) per sack and need not be weighed. Bulk cement or fractional sacks shall be weighed or scaled separate and distinct from the aggregate batching scales. Cement shall be added to the base materials in a manner that will cause the cement to be distributed throughout the coarse or fine aggregate and shall not enter the mixer as a distinct unit separated from the aggregates.

**400-5.2.3 Cement Content.** The amount of cement to be added to the mineral aggregate shall be a minimum amount of two percent by weight, of the dry aggregate.

**400-5.2.4 Water.** The amount of water needed and the number of water trucks required to handle it will vary with the optimum moisture content of the mixture, existing moisture in the soil, rate of evaporation, length of water haul, and rate of processing. Usually a minimum of two trucks will be required to handle water for mixing and finishing. Where the water haul is very long, one or more additional trucks may be necessary. On very large jobs, two or more trucks will be required to handle water for mixing and an additional one for finishing. Weight or volume may proportion water. The quantity of water added to the mixture shall be adjusted to permit maximum compaction by the treated material on the roadbed, as determined ASTM D 1557, Method C. The quantity, the rate, and the time of addition of water to the aggregate shall be subject to the approval of the Engineer and all water additions shall be made under conditions, which will permit an accurate determination of the quantity of water added.

## PART 5

# SYSTEM REHABILITATION

### SECTION 500 - PIPELINE

#### **500-1.1 REQUIREMENTS.** ADD the following:

The Contractor shall furnish and install, between the limits shown on the drawing, a tight-fitting sewer rehabilitation liner. The Contractor shall perform all work necessary to complete the Contract in a satisfactory manner. Unless otherwise provided, the Contractor shall furnish all materials, equipment, tools, labor, and incidentals necessary to complete the Work. The rehabilitation method approved shall be one of the following:

- a) Slip-Lining
- b) Cured-in-place Pipe Liner (CIPP)
- c) Machine Spiral Wound (PVC) Liner Pipe

Products associated with the above methods shall conform to the AML.

#### **500-1.1.1. GENERAL.** ADD the following

Installation of the sewer lining shall be performed by a contractor certified by the manufacturer/owner of the process. The three apparent lowest bidders shall submit copies of their certificates within five Working Days of the Bid opening date along with a list of jobs completed.

- a) The Contractor shall bypass sewage around the sewer main to be televised, lined, or both in accordance with 805-2.1, "Sewage Bypass and Pumping Plan." The bypass shall be made by plugging existing upstream manhole and pumping the sewage into a downstream manhole or adjacent system or by any other method as may be approved by the Engineer. The pump and bypass lines shall be of adequate capacity and size to handle the flow without a sewage backup affecting any facilities connected to the sewer. The Contractor shall have backup pumping equipment at the job-site at all times.
- b) The Contractor shall be responsible for the continuity of sanitary sewer service to each critical facility listed below and connected to the sewer during the execution of the work:
  - i. Hospitals, medical centers or medical professional buildings
  - ii. Industrial and professional buildings with the high water usage.
  - iii. Restaurants and salons
  - iv. Laundromats and cleaners
  - v. Senior citizens' apartment buildings and retirement homes
  - vi. Large apartment building, condominiums (25 units and up), or as specified by the Engineer.

It is the Contractor’s responsibility to obtain permission from all owners and residents prior to using their cleanouts for bypass purposes. Bypassing is part of the unit price bid for pipe rehabilitation, pipe point repair, or both. If a cleanout is not available for the Contractor’s use, a temporary cleanout for bypass purposes shall be installed at the Contractor’s expense as close to the property as possible. Any temporary cleanout shall have the prior approval of the Engineer prior to installation.

**ADD: 500-1.1.1.1 Design Criteria and Testing Requirements.**

Design Criteria: Table 500-1.1.1.1.(A) lists the minimum finished pipe liner wall thicknesses and minimum long-term flexural modulus for the pipeline rehabilitation methods specified herein. The thickness installed shall be increased as necessary to accommodate the existing conditions revealed in the television inspection required in 500-1.1.5, “Television Inspection” that will result in the minimum thickness specified at all locations along the rehabilitated pipe. The volume of resin used should be sufficient to fully saturate all the voids of the fabric tube material and an additional 15% shall be added to allow for change in resin volume due to polymerization and any migration of resin into cracks and joints in the original pipe, unless a higher percentage is noted herein to fill cracked and deteriorated pipelines.

TABLE 500-1.1.1.1. (A) Minimum Pipe Liner Thickness (in.)

Material	C.I.P.P	H.D.P.E.	PVC Type A	PVC Type B	PVC SPIRAL WOUND
Specification	500-1.4	500-1.7	500-1.10	500-1.10	500-1.6
Minimum Long Term Flexural Modulus (psi) <sup>1</sup>	150,000	110,000	280,000	155,000	155,000
Nominal I.D. (in.)	Thickness	Thickness	Thickness	Thickness	Stiffness <sup>2</sup>
6	.24	.20	.18	.18	71
8	.24	.25	.19	.24	151
10	.30	.31	.23	.30	287
12	.34	.38	.28	.37	493
15	.45	.47	.34	.46	953
18	.51	.56	.41	.50	1,640

Notes: 1) Modulus of Elasticity is the minimum in accordance with ASTM E790, Method 1.  
 2) Minimum pipe stiffness (EI) in accordance with ASTM D2412.

Testing requirements: For all pipeline rehabilitation systems, in addition to the final CCTV inspection, the Contractor shall perform at a certified laboratory, a minimum of 1 structural test on samples taken at 6 randomly selected manhole sites, as directed by the Engineer. Payments for these tests shall be included in the price in accordance with LF of main rehabilitation. Liner materials not meeting any specified minimum value for which tests are required shall be removed and replaced with liner material meeting these specifications at no additional cost to the City.

Structural and chemical tests shall be in accordance with the following ASTM methods:

ITEM	DESCRIPTION	ASTM METHOD
1 (a)	ID Wall Thickness	ASTM D2122-98
1 (b)	Flattening	ASTM D3034- 00
1 (c)	Pipe Stiffness	ASTM D2412-96a
2	Impact Strength	ASTM D2444- 99
3	Extrusion Quality (PVC only)	ASTM D2152-95 or ASTM F1057
4	Hardness	ASTM D2240-97
5	Tensile Strength/Tensile Modulus	ASTM D638M-96
6	Flexural Strength	ASTM D790-96a (test Method I)
7	Flexural Modulus	ASTM D790 & D2990-95

**500-1.1.2 Submittals.** ADD the following:

The Contractor shall submit certified test results for each item in the table above on the specified structural characteristics of the rehabilitation systems for the Engineer’s approval. The Contractor shall submit bypass locations(s), bypass system sizing and a proposed equipment list to ensure that the work can be accomplished without a sewage spill; and all other documents in accordance with 805-2, "Sewage Spill Prevention and Response Plan" and 805-2.1, "Sewage Bypass and Pumping Plan" and any other applicable sections of these specifications.

**500-1.1.4 Cleaning and Preliminary Inspection.** ADD the following:

The sewer main pipe diameters, shown on the plans, are nominal dimensions. The Contractor shall verify the actual internal pipe diameters and length of each reach prior to ordering lining materials.

### **500-1.1.5 Television Inspection.** ADD the following:

- a) The Contractor shall televise the pipeline following both the cleaning and rehabilitation operations, in accordance with this section of the Standard Specifications, including Regional and City Supplement Amendments, and all aspects of these activities shall be included in the contract unit price for cleaning and televising. Post televising rehabilitated mains shall be performed in the presence of the Engineer. Digital Video Discs (i.e., DVD) shall be acceptable in lieu of VHS format.

The City reserves the right to re-televising any reach of the pipeline following the cleaning and rehabilitation activities, but before final acceptance by the City, to determine the existence and extent of any foreign material or obstructions such as, but not necessarily limited to, cement grout, wood, rocks, sand, concrete, or pieces of pipe, and any structural deficiencies, or sags preventing the completion of construction or other contract work. The Contractor shall notify the City via the Engineer at least 30 Working Days in advance of the anticipated date that final acceptance will be requested. If the specified advance notice is not given, final acceptance and bond release may be delayed.

10 Working Days shall be allowed for the City to review each individual video disc of each and every reach documented on that particular videodisc. In the event that any deficiencies are discovered by the Engineer or City, either by the Contractor's televising or the City's re-televising, 5 Working Days shall be allowed for City to judge whether the deficiencies are repairable, in place. If the judgment is made that the deficiencies are non-repairable in place, the affected portion(s) shall be reconstructed at no cost to the City.

The Contractor shall not be entitled to any additional contract time due to delays resulting from the need to correct any deficiencies, either repairable or non-repairable, in place, as determined by televised inspections.

Due to the nature of the work, the Contractor shall provide a self-propelled camera, capable of extended videotaping lengths and operation in remotely accessed areas without direct vehicular access. The Contractor shall televise the pipeline with maximum flow diverted from the pipeline.

The system used to move the camera through the pipe shall not obstruct the camera's view. The remote-reading footage counter device which measures the distance traveled by the camera in the pipe shall be accurate to plus or minus 1' (0.3 meters) in 1000' (300 meters) (+0.3m:300 meters). The Contractor shall calibrate the measuring device each day with a known distance to the satisfaction of the Engineer prior to starting the inspection and videotaping process.

- b) Television inspection shall be performed one sewer reach at a time. The sewer reach being inspected shall be isolated from the remainder of the sewer with the upstream sewage flow bypassed. If existing flows are high, pre-construction video inspection can be done with partial flow. Depth of the flow shall not exceed:

- i. 6" - 10" (150 mm. - 250 mm) pipes - 20% of the pipe diameter.
- ii. 12" - 24" (0.3 meters - 0.6 meters) pipes - 25% of the pipe diameter.
- iii. 27" (0.7 meters) and up pipe - 30% of the pipe diameter.

The camera shall be moved through the sewer in either direction at a uniformly slow rate by means of power cable winches or self propelled tractors at each manhole, stopping and rotating the camera head at each lateral connection, defect, or both to allow for adequate evaluation. Both pre and post video inspections shall be submitted to the Engineer.

- c) Obstructions may be encountered during the course of the internal inspection that prevents the travel of the camera. If an obstruction is not passable, the Contractor shall withdraw the equipment and begin internal inspection from the opposite end of the sewer reach. Should an additional obstruction be encountered (excluding protruding taps) after employment of the equipment from the opposite end of the sewer and no means are available for moving the television camera past the obstruction, the Contractor shall notify the Engineer, and the inspection shall be postponed until the obstruction is removed. A reverse setup, if necessary, shall be performed by the Contractor at no additional cost to the City. Should the camera get stuck in the sewer, the Contractor shall be responsible for all costs involved in extracting it. Costs related to difficulties encountered during internal television inspection are incidental to the Contract and claims, therefore, will not be considered.
- d) Defects, including but not limited to offset joints, cracks in the pipe, inflow, etc., shall be pointed out, quantified verbally and projected on CCTV video disc. The Contractor shall use the standard owner's video disc introduction, abbreviations, log sheet forms, and severity code with legend when recording the line segment information. The Contractor shall notify the Engineer of any additional damage found and obtain prior approval from the Engineer for additional point repairs.
- e) All original digital video (DVD) disc shall be submitted to and shall become the property of the City. DVD's shall be reviewed by the Engineer for focus, lighting, sound, clarity of view, and technical quality. Videos recorded while a camera has flipped over in the process of traveling and the viewing of laterals, obstructions or defects that are blocked by cables, skids or other equipment will not be accepted. Sharp focus, proper lighting, and clear distortion-free viewing during the camera operations shall be maintained. Failure to maintain these conditions will result in the rejection of the video disc by the Engineer. Any video disc not acceptable to the Engineer shall be re-televised at no additional cost to the City.
- f) Final Closed Circuit Television Inspection. The Contractor shall pre-clean the line with high pressure water jetting equipment and a sewer ball, and then perform a mandrel, air test or both, or as specified by the Engineer. For the final video inspection, the City will require a dry pipe. During the post-video inspection, the camera shall stop at each lateral connection, focus on the bottom of the opening and then make one



slow clockwise observation around the perimeter of the lateral which clearly shows the quality of the connection. Then, the camera shall focus on the center of the lateral opening for a minimum of 15 seconds before moving on. If the Contractor fails to properly show and document any of the lateral openings, the Contractor will be required to re-televising that section of pipeline at no additional cost to the City.

- g) Digital Video Files. The Contractor shall provide all video (with audio) in digital file format on DVD's. The Contractor shall provide an initial submittal at the start of televising work demonstrating the typical video and audio quality to be provided for approval by the City. This submittal shall note any proposed changes to the specification listed below regarding video format, data processing, compression or other condition for review and approval by the City.
- i. One file shall be provided for each manhole to manhole pipe segment (or for each manhole to manhole inspection video).
  - ii. The filename shall incorporate the unique facility identifier (to be provided by the City) and the date of the inspection. The facility identifier numbers will be manhole numbers, with adjacent manhole numbers identifying pipe sections. The facility identifier number(s) shall be compatible with the data input features of the reporting software (i.e. number of available input digits and/or fields).
  - iii. The camera source image capture shall provide a high resolution image with a minimum of 240 x 352 pixels capture. The video shall be at 30 frames per second.
  - iv. The video will be captured and compressed so as to reduce file size as much as possible while still meeting the needs of the City. The compression shall be in accordance with MPEG-1 format. The video files shall be highly compressed, resulting in an anticipated average file size of 10 MB per minute of video.
  - v. The compression shall not significantly degrade the still frame quality of the video or audio signal from the original source video, as judged in a side by side viewing under normal viewing conditions.
  - vi. During post-installation CCTV inspections, the Contractor shall utilize one of the following video camera systems: a rotating-lens camera (articulating head) or a pan and tilt camera. If an obstruction is encountered during post-installation CCTV inspection, the Contractor shall remove the obstruction by excavation, repair or any other means approved by the Engineer, at no additional cost to the City. After the obstruction has been removed, the Contractor shall continue with the CCTV inspection. The inspection and videotaping equipment performed shall meet 500-1.1.5, "Television Inspection." The Contractor shall use a dual recording system and submit post video inspection discs to the inspector, subsequent to recording. The

Contractor shall ensure good visibility and lighting, with minimum glare and without any dark or shadowy regions appearing on the final video disc. The Contractor shall pan and tilt the camera and pause for at least 15 seconds at each lateral connection to adequately show and document that the saddle has been installed properly (for new installations) and that the lateral opening has been reestablished (for rehabilitation/lining) in accordance with 500.1.1.7.a, "Miscellaneous."

- vii. The television camera shall produce a continuously-monitored high-quality picture, capable of discerning all major and minor structural defects in the pipeline. The post-installation CCTV inspection will document all defects which may affect the integrity and/or the strength of the pipeline, such as cracks, roughness, "fins" or folds. The Contractor shall repair and/or replace all defects, at no additional cost to the City, which in the opinion of the Engineer may affect the hydraulic condition of the pipe liner.

**500-1.1.9 Measurement and Payment.** ADD the following:

The point repair work will be measured and paid for at the unit price bid per each point repair. Measurement will be made at the pipe and will be based on the length of pipe repaired. The Contractor will be paid for 1 point repair for each repair 8' or less in length.

The unit price for rehabilitating the sewer main in the manner described shall be full compensation for all materials, labor, equipment, and incidentals required to insert the liner pipe within the host pipes. Payment will be for actual linear footage for liner installed in the field and shall be measured between the manholes from the wall, next to the insertion invert, to the invert wall of the downstream manhole, unless the Contractor lines through the manhole. Payment for the liner shall include the cost of sealing the liner in the maintenance holes. Television inspection after rehabilitation (post-CCTV) shall be performed in accordance with 500-1.1.5, "Television Inspection." As-built information and all other relevant submittals shall be considered incidental to the Project.

The Contractor shall be responsible for making adequate and suitable arrangements for any bypass pumping that may become necessary to prevent any backflow onto private or public property, between the time the liner is inserted, and the service re-connections have been made, tested, and approved by the City. Unless provided for, bypass pumping shall be incidental to the cost of the sewer rehabilitation.

**ADD: 500-1.1.10 Additional Point Repair on Sewer Pipe.** The purpose of this item is to pay the Contractor for point repairs continuous with, and in addition to, the basic 8' repair. Measurement will be made at the pipe and will be based on the length of the pipe repaired. Payment will provide complete compensation for furnishing all labor, materials, and incidentals necessary to install the additional point repair, complete, in place.

**500-1.4.1 General.** ADD the following:

The CIPP liner shall extend the full length of the pipe reach to be rehabilitated and shall provide a structurally sound, impermeable, seamless, joint-less, close-fitting pipe, that when cured, is bonded to the host pipe.

**500-1.4.2 Material Composition and Testing.** ADD the following:

Tube: The tube shall be supplied by the system licensor to the licensed Contractor in accordance with ASTM F 1216-98 or ASTM F 1743-96 or the latest revision thereof. The side of the liner exposed to the sewer flow after inversion or pull-in is completed shall have a layer of polyurethane bonded to it, with a minimum thickness of 0.01" (0.3 mm), and shall be pinhole free. Seams and patches in the polyurethane coating shall be inspected under a black light. The tube shall be placed under a vacuum at the factory and submerged in a dye bath to verify that it is pinhole free. The Contractor shall provide proof to that effect. The felt tube shall be continuous and of sufficient length to extend the entire reach (from entry to end point) of the host pipe to be rehabilitated and to be of sufficient length to allow for restrained sample to be taken after installation. No joints or laps shall be permitted between manholes. The Contractor shall comply with all requirements specified by 500-1.1.1 and provide documentation to verify this compliance prior to installation.

One 18" (450 mm) long restrained and cured sample shall be taken from the downstream and any intermediate maintenance holes, unless otherwise specified by the Engineer. The sample shall be checked by an approved independent testing laboratory at Contractor expense using ASTM D 2122-98 to verify the minimum wall thickness.

Resin: The Contractor shall furnish an epoxy or epoxy vinyl ester resin in accordance with the City of San Diego Approved Material List. A compatible catalyst system shall be specified by the resin manufacturer. The resin manufacturer shall provide the Contractor with the recommended curing cycle and shall submit the same to the Engineer for approval. Certified copies of all test reports performed by the independent testing laboratory on the properties of the selected resin and on the properties of the field liner coupons, in accordance with 4-1.4 "Test of Materials" and these specifications shall be submitted to the Engineer.

**500-1.4.5 Installation.** ADD the following:

The installation procedures may vary with the methods of rehabilitation techniques/processes approved for the Project.

The Contractor shall submit in the same format as in 500-1.4.5.1, "Wet Out," 500-1.4.5.2, "Insertion," 500-1.4.6.1, "Cool Down," and 500-1.4.6.2, "Finished Pipe" or give detailed instructions, procedures and the steps to be followed for the installation of the CIPP even if the process is named in the specification. Such instructions and procedures shall be submitted for approval by the Engineer and shall be carefully followed.

Material, delivered to the Site, shall be accompanied by appropriate (individual) documentation listing physical properties, curing, or reforming temperatures and pressures.

**ADD: 500-1.4.5.1 Wet Out.** The Contractor shall designate a location where the felt tube will be impregnated ("wetted out") with resin. The quantity of a resin used for tube

impregnation shall be sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and stretching during installation, and for the loss of resin through cracks and irregularities in the host pipe according to these specifications. The calculations for the quantity of resin required shall be submitted and approved by the Engineer prior to wetting out the liner. A roller system and vacuum shall be used to uniformly distribute the resin throughout the tube to thoroughly saturate the felt tube prior to its dispatch for installation. The gap in the roller shall be verified every 50" (15 meters). The Contractor shall inform the Engineer, at least 4 Working Days in advance, to inspect the materials and the wet out procedure. A catalyst system or additive(s) compatible with the resin and tube, may be used in accordance with the manufacturer's recommendation. They shall not impair or reduce the resin's quality to withstand the minimum chemical resistance criteria.

**ADD: 500-1.4.5.2 Insertion.** The wetted out tube shall be transported and kept in a refrigerated truck, until it is inserted through an existing manhole by the approved technique/process of the installer or the Contractor. The Contractor shall use either an end-stop or hold-back mechanism to prevent the felt tube from extending into conduits which are not to be rehabilitated. The Contractor shall protect the Site in accordance with 7-8, "WORK SITE MAINTENANCE" and 7-9, "PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS," and shall be responsible for repairing or replacement of all existing improvements within the Site which are damaged, removed, or both as a result of the Contractor's operations, at no cost to the City.

**500-1.4.6 Curing.** ADD the following:

After the insertion is completed, the Contractor shall use a hot water recirculation system, capable of delivering the required heat uniformly throughout the pipeline, for a consistent cure of the resin. All City water used shall be from metered supply and paid for by the Contractor in accordance with 7-15, "WATER FOR CONSTRUCTION PURPOSES" City of San Diego Supplement Amendments. The time required for curing function of the pipeline diameter, length, and curing temperatures shall be determined by the Contractor in accordance with the resin/catalyst system of the resin manufacturer.

The heat source shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing heat source. It is required that thermocouples be placed on the top and bottom of the impregnated tube and the host pipe at the upstream and downstream manhole(s), as well as in any intermediate manhole to determine the temperatures during the resin curing process. Thermocouples shall be connected to a recording device at the heater truck to have a continuous measurement of the thermocouples on the tube as well as the intake and output water temperatures at the water heater. The recording device used to measure all temperatures shall be calibrated prior to use on the Site. The Contractor shall provide all calibration records for all equipment used on the job, upon request by the Engineer.

Remotely located thermocouple readings and the temperature of the circulating water at the downstream end of the liner (away from the heater truck) shall be recorded every 3 to 5

minutes until the resin begins and sustains a thermal reaction and then the interval for recording temperatures shall be every 10 minutes . The initial cure may be considered completed when the exposed portions of the felt tube appear to be hard, and the remote sensing device indicates the temperatures to be adequate, as recommended by the resin/catalyst system manufacturer, and approved by the Engineer. The Contractor shall be fully responsible for the accuracy of its work and for determining when curing has been completed to meet the specified properties. Care shall be taken during the elevated curing temperatures so as not to over stress the fiber liner. Curing temperatures and duration shall comply with data and information previously submitted and approved by the Engineer.

The cured liner shall have a smooth finish inside. Any roughness that may affect the hydraulic conditions shall be removed by sanding or trimming the “fins” or folds. Such trimming shall not change the required thickness or structural strength of the liner. The Contractor shall apply an approved sealant compatible with the material to areas where sanding has taken place or replace the pipe liner from manhole to manhole as determined and directed by the Engineer, at no additional cost to the City.

**ADD: 500-1.4.6.1 Cool Down.** The Contractor shall cool the hardened pipe to a temperature below 100 degrees Fahrenheit (38 degrees Celsius), before relieving the water column. Cool water may be added to the water column while draining hot water from a small hole at the opposite end of the CIPP, so that a constant water column height is maintained until cool-down is completed. Care shall be taken in the release of the water column so that a vacuum will not develop that would damage the newly installed pipe. Coupon samples shall be obtained for testing in accordance with 500-1.1.6, “Sampling, Testing and Installation” and these specifications. The cool down process may vary depending on the installation technique.

**ADD: 500-1.4.6.2 Finished Pipe.** The finished CIPP shall be continuous over the entire length from manhole to manhole and shall be free from visual defects such as foreign matters, dry spots, pinholes, wrinkles and other deformities. The liner passing through or terminating in a manhole shall be carefully cut out. The cut shall be smooth and parallel to the manhole wall. The finished liner shall not protrude into the manhole over 2” (50 mm). If the manhole has been lined through, the top half of the liner pipe shall be cut off even with the top of the shelf, leaving the channel lined in accordance with 306-6, “REMODELING EXISTING SEWER FACILITIES” unless otherwise approved by the Engineer. The invert and benches shall be streamlined and improved for smooth flow. The area/annular space between the host pipe and the CIPP liner shall be sealed with the approved epoxy or other material that is compatible with the CIPP liner, and shall provide a watertight seal. The sealant system and materials shall conform to 210-2.3.3, “Chemical Resistance Test (Pickle Jar Test)” and shall be pre-approved by the Engineer. It shall meet the leakage requirements of the pressure test specified in these Contract Documents. During the warranty period, any defect specified by the Engineer which will affect the integrity or strength of the pipe liner shall be repaired at the Contractor’s expense.

Installations will not be considered complete until the lining is installed, all final cuts are finished, all channels and benches in the manholes are installed or refinished, all

miscellaneous work described in the Contract documents are complete, the final video inspection is performed and as-built information is submitted to the City. No payment for installation will be made until these are completed

**ADD: 500-1.4.6.3 Process Limitations.** Though the installation process may be licensed or proprietary in nature, the Contractor shall not change any material, thickness, design values or procedural matters stated or approved in the submittals, without the Engineer's prior knowledge and preapproval. The Contractor shall submit, in writing, full details about component materials, their properties, method and procedure of installation and comply with them fully during the entire course of the Project.

The City will require a continuous, uniform liner 300' (90 meters) or greater between maintenance holes, unless otherwise shown on the plans. The City will not allow intermediate excavations for additional manholes not shown on plans.

**500-1.4.7 Service Connections.** ADD the following:

After curing is complete, the Contractor shall reestablish all live service connections in accordance with 500-1.1.7, "Miscellaneous." If the Contractor cannot reestablish a service connection as specified above within specified normal working hours, the following shall apply: The Contractor shall open all live laterals with preliminary cuts to relieve the flow the same day as the installation. The preliminary cut shall be a smooth round cut, with a minimum diameter of 1" less than the lateral's diameter. Final cuts shall be completed during normal working hours within a week from the date of the liner installation, unless otherwise approved by the Engineer.

After the service has been completely established, the Contractor shall proceed with either sealing the lateral connection or lateral lining or both as called for in these specifications.

**ADD: 500-1.4.8.1 Payment.** The unit price for rehabilitating the service connections in the manner described shall be in accordance with 2-6, "WORK TO BE DONE."

**ADD: 500-1.6 SERVICE LATERALS.**

**500-1.6.1 SERVICE LATERAL CONNECTIONS (SLC).** SLC is the interface of the house lateral with the main sewer. SLC to rehabilitated sanitary sewer lines shall be sealed, normally without excavation, by the installation of a resin-impregnated, flexible, felt tube or fiberglass tube installed into the existing service lateral. The tube shall form a "tee" section with a full lap inside the main pipe. SLC may be a combination of "tees" or "wyes" of varying angle. The resin shall be cured to form the tube into a hard impermeable pipe-within-a-pipe. When cured, the SLC shall seal the connection of the lateral to the mainline in a continuous tight-fitting, watertight pipe-within-a-pipe to eliminate any visible leakage between the lateral and mainline.

Prior to cleaning and pre-rehab video inspection, the Contractor shall submit a detailed operational plan for the proposed cleaning of all roots inside the pipe and around the service connection for the Engineer's approval. After cleaning, the Contractor shall proceed with lining of the pipe and reinstating all live service connections. The service connection

openings shall conform to the shape and the size of the inside diameter of the existing service connection. Contractor shall use a wire brush or other methods and equipment as recommended by other lining system providers, or other approved means and methods to provide a smooth opening for connecting the lateral to the newly lined pipeline.

Contractor shall trim all protruding laterals which interfere with the lining installation, as flush with the pipe interior as practicable.

**500-1.6.1.1 General.** The Contractor shall reinstate all active services by a remote control device pre-approved by the Engineer. The Contractor shall have a fully operational backup device on site. After re-establishment, the reconnected service lateral shall be sealed to the liner. The connection shall provide a leak-proof seal designed for a minimum 50-year life to prevent root intrusion and infiltration/exfiltration between a liner and a host pipe. The Work includes minimum 4" of partial lining into the service connection in accordance with 500-1.6.1, "Service Lateral Connections (SLC)." It is the intent to line the pipe without excavation and to provide a permanent lateral sealing in newly lined sewer pipeline.

The Contractor shall seal the service lateral connections by extending the liner continuously from the sewer main into the lateral for a minimum of 4". The Contractor shall have the Engineer on-site during the process to verify the completion of the work.

Payment for re-establishing and sealing by open trench or by remote control device, into the service connection shall be included in the unit price bid for service lateral connection and no additional payment shall be made.

**500-1.6.1.2 Reference Specification.** This specification references ASTM test methods which are made a part hereof by such reference and shall be the latest edition and revision thereof and shall meet the chemical resistance requirements of section 210-2.3.3, "Chemical Resistance Test (Pickle Jar Test)."

**500-1.6.1.3 General Corrosion Requirements.**

- a) The finished SLC product shall be fabricated from materials which when cured will be chemically resistant to withstand internal exposure to domestic sewage and shall meet the chemical resistance requirements of 210-2.3.3, "Chemical Resistance Test (Pickle Jar Test)" and Table 210-2.4.1 (A).
- b) The SLC product shall be compatible with the lining system materials utilized in the main sewer line.

**500-1.6.1.4 SLC Materials.**

- a) A flexible, felt tube shall be fabricated to neatly fit the internal circumference of the conduit specified by the City. Allowance shall be made for circumferential stretching during insertion.
- b) The SLC connection shall extend minimum 4" from the mainline into the lateral.
- c) Contractor shall furnish a resin and catalyst system compatible with the SLC process that provides cured physical strengths specified herein.



### **500-1.6.1.5 Physical Properties.**

- a) The structural performance of the finished pipe shall be adequate to accommodate all anticipated loads throughout its design life. No cured-in-place pipe rehabilitation technology will be allowed that requires bonding to the existing pipe for any part of its structural strength.
- b) Design methods are to be derived from traditionally accepted pipe formula for various loading parameters and modes of failure. Equations shall be modified to include deformation in the shape of an oval as a design parameter. The design method shall be submitted to the Engineer for approval prior to the pre-construction meeting.
- c) The cured SLC shall conform to the minimum structural standards as listed in Table 500-1.4.2 (A) of the Standard Specifications for Public Works Construction.

### **500-1.6.1.6 Installation Preparation.**

- a) The Contractor shall carry out its operations in strict accordance with all applicable OSHA standards and City's guidelines. Particular attention is drawn to those safety requirements involving entering confined spaces.
- b) It shall be the responsibility of the Contractor to remove internal debris out of the sewer line.
- c) Inspection of pipelines shall be performed by experienced personnel trained in locating breaks and obstacles by closed circuit television. The interior of the pipeline shall be carefully inspected to determine the location of any conditions which may prevent proper installation of the SLC into the pipelines, and it shall be noted so that these conditions can be corrected. A color video and suitable log shall be kept for later reference by the City.
- d) The Contractor, when required, shall provide for the flow of sewage around the section or sections of mainline pipe where the service lateral designated for SLC is located. The bypass shall be made by plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system. The pump and bypass lines shall be of adequate capacity and size to handle the flow. The bypass systems shall be approved in advance by the City.
- e) It is required that the service lateral be inactive during the time of installation. This is normally accomplished by turning off the homeowner's services or requesting that the homeowner relinquish its services during the required period of installation.
- f) Line Obstructions - It shall be the responsibility of the Contractor to clear the line of obstructions that will prevent the insertion of the SLC material. If inspection reveals an obstruction that cannot be removed by conventional sewer cleaning equipment, the Contractor shall make an external point repair excavation to uncover and remove the obstruction. The Contractor shall inform the Engineer prior to the commencement of the Work.

- g) The mainline pipe opening shall be prepared to accept the SLC and the mainline rehabilitated pipe shall be maximized to obtain the best possible connection.
- h) The transition from the mainline pipe to the service lateral shall be smooth and continuous to provide adequate support for the SLC during installation and cure.

### **500-1.6.1.7 SLC Installation.**

- a) The resin impregnated tube shall be loaded inside a pressure apparatus. The pressure apparatus, attached to a robotic device, shall be positioned in the mainline pipe at the service connection. The robotic device, together with a television camera, shall be used to align the SLC repair with the service connection opening. Air pressure, supplied to the pressure apparatus through an air hose, shall be used to invert the resin impregnated SLC into the lateral pipe. The inversion pressure shall be adjusted to fully invert the SLC into the lateral pipe and hold the tube tight to the pipe wall. Care shall be taken during the curing process not to over-stress the tube.
- b) The pressure apparatus shall include a bladder which shall inflate in the mainline pipe, effectively seating the SLC repair against the service connection.
- c) After inversion or pull in is completed, recommended pressure is maintained on the impregnated tube for the duration of the curing process. Curing method shall be compatible with the resin selected. An ultraviolet (UV) light cured, heat cured or ambient cured resin system is typically used.
- d) The initial cure shall be deemed to be completed when the SLC has been exposed to the UV light, heat source or held in place for the time period specified by the manufacturer.
- e) The Contractor shall cool the hardened SLC before relieving the pressure in the pressure apparatus. Cool-down may be accomplished by the introduction of cool air into the pressure apparatus. Care shall be taken to maintain proper pressure throughout the cure and cool-down period.
- f) The finished SLC shall be free of dry spots, lifts and delamination. The lateral SLC shall not inhibit the closed circuit television post video inspection of the mainline or service lateral pipes. Frayed ends of the SLC repair shall be removed prior to acceptance.
- g) During the warranty period, any defects which will affect the integrity of strength of the SLC shall be repaired at the Contractor's expense in a manner mutually agreed upon by the Manufacturer, City and the Contractor.
- h) After the work is completed, the Contractor will provide the City with a video disc showing the completed work including the restored conditions.

**500-1.6.1.8 Clean –Up.** Upon acceptance of the installation work, the Contractor shall reinstate the Site affected by its operations.

**500-1.6.1.9 Payment.** Payment for the work included in this section shall be per each lateral and shall include all labor and materials to satisfactorily clean and seal the lateral connection as called for in these specifications.

### **500-1.6.2 Cured In-Place Lateral Lining.**

#### **500-1.6.2.1 General.**

It is the intent of this specification to rehabilitate a sewer service lateral which enters a collector pipe without excavation of the entire pipe. The rehabilitation will be accomplished using a fabric or fiberglass tube of particular length and a thermoset resin with physical and chemical properties appropriate for the application. The tube is vacuum impregnated with the resin. Access to an upstream end of the service lateral is made by excavation in the public right of way. Installation of the resin-impregnated tube into the service lateral may be performed either by Type A inversion in accordance with ASTM F1216 or by Type B pull-in in accordance with ASTM F 1743, and may be performed from either the mainline or the excavated end of the lateral.

The cured-in-place liner shall extend the entire length of the lateral from the access point to the mainline. Once the tube/resin composite is cured, the installation equipment shall be removed and the protruding end in the collector shall be cut using a robotic cutting device. A sewer cleanout in accordance with the City of San Diego Standard Drawing SDS-102 "Sewer Lateral Cleanout (In Driveway, Paved Alley, Sidewalk, or Other Area Subject to Traffic)" or SDS-103 "Sewer Lateral Cleanout Outside Traveled Way" shall be installed at the access point and properly backfilled.

**500-1.6.2.2 Material.** The tube will consist of one or more layers of flexible needled felt, or an equivalent material. Where the tube is fabricated from non woven felt, the longitudinal and circumferential joints are made up by seal bonding. The tube will be capable of conforming to bends, off-set joints, bells, and disfigured pipe sections. The resin and catalyst system as designed for the specific application shall meet the chemical resistance requirements of 210-2.3.3, "Chemical Resistance Test (Pickle Jar Test)."

The composite of the materials above will, upon installation inside the host pipe, will exceed the minimum test standards specified by ASTM according to Table 500-1.4.2 (A).

**500-1.6.2.3 Installation Procedures (ASTM F 1216-98 and ASTM F 1743).** Standard practice for the Installation of Cured In Place Pipe by Inversion Lining or Pulled-in Place.

- a) The Property Owner of the lateral being reconstructed will be informed, and the flow stopped, for the period of reconstruction work. By-pass pumping the collector pipe may not be necessary for normal flows.
- b) The Contractor will excavate an access pit at the appropriate upstream point on the service lateral in accordance with the reconstruction length desired by the City.
- c) The Contractor will always clean and color video the lateral line immediately prior to reconstruction and determine the overall structural condition of the pipeline. All

roots, debris, and protruding service connections shall be removed prior to reconstruction.

- d) The tube is inspected for torn or frayed sections. The tube in good condition will then be vacuum impregnated with the thermoset resin.
- e) No open pans or uncontrolled open-air pouring of resin should be allowed during tube saturation. All resin will be contained within the inflation bladder during vacuum impregnation and insertion. Contractor will always ensure that no public property is exposed to contamination by liquid resin compounds or components.
- f) The saturated tube along with the inflation bladder will be inserted into the installation equipment and the end closed. The entire installation equipment is placed in the pipe access pit and aligned with the exposed end of the pipe.
- g) The resin and tube are completely protected during the placement. The resin shall not be contaminated or diluted by exposure to dirt, debris, or water during the placement.
- h) The tube will be installed from the installation equipment by controlled air, water or steam pressure as in accordance with manufacturer instructions. The installation shall be stopped when the tube extends the entire length of the lateral section to be lined. The tube is held tightly in place against the wall of the host pipe by the pressure until the cure is complete.
- i) When the curing process is complete, the pressure is released and the inflation bladder reverted back into the installation equipment and removed from the pit.
- j) No barriers, coatings, or any material other than the cured tube/resin composite, specifically designed for desirable physical and chemical resistance properties, is to be left in the host pipe. Any materials used in the installation other than the cured tube/resin composite are to be removed from the pipe by Contractor.
- k) Any cured tube/resin composite pipe left protruding from the service connection will be trimmed back using a hydraulic-powered robotic cutting device specifically designed for cutting cured-in-place pipe made from these materials.
- l) A second color video inspection is performed to verify the proper cure of the material, the proper trim of service connection, and the integrity of the seamless pipe. City will receive a CD video recording of the inspections and a written report documenting the lateral work.
- m) The by-pass pumping system is to be removed and the sewer flows restored to normal flow conditions. The service lateral pipe is coupled together, and the excavation properly backfilled. The property owner of the service connection will be informed when the work is complete.

**500-1.6.2.4 Deviations.** Should pre-installation inspection reveal conditions in the sewer to be substantially different than those used in the design of wall thickness, tube construction,

tube length, or resin system; then the Contractor will implement appropriate changes to correct the situation.

**500-1.6.2.5 Clean-Up.** The Site shall always be left clean and the property returned to original condition.

**500-1.6.2.6 Final Acceptance.** Upon completion, Contractor shall deliver the CD video and report to the City. The City will review the documentation and the Site to determine that the scope of work is complete and the work is satisfactory.

**500-1.6.2.7 Payment.** Payment for the work shall be per linear foot of lateral rehabilitation and shall include all labor and materials as called for in these specifications. It shall include the labor and material for the installation of a sewer cleanout at the access point.

**500-1.6.3 Insitu Point Repairs.** Payment for in-situ point repairs shall be included in the bid price for insitu point repairs and paid for in accordance with 500-1.1.9, "Measurement and Payment" and 500-1.1.10, "Additional Point Repair on Sewer Pipe."

### **500-1.7 DEFORMED/REFORMED HDPE PIPE LINER.**

**500-1.7.1 General.** ADD the following:

Deformed/reformed HDPE pipe liner shall extend the full length of the pipe reach to be rehabilitated and shall provide a structurally sound, impermeable, seamless, joint less, close-fitting pipe which is tightly adhering to the host pipe.

**500-1.7.2 Material Composition.** ADD the following:

Before installation, the Contractor shall provide to the Engineer appropriate individual test documentation with the physical properties and information as specified by the manufacturer for each coil of pipe. The information shall consist of: Factory test results to show compliance with ASTM D 3350 Cell Classification 345434 C, D, or E and the requirements of 207-19.2, "Material Composition" reforming temperatures and pressures, a production date for each coil, and all other appurtenant information which is necessary to conform to the applicable requirements.

**500-1.7.6 Installation and Field Inspection.** ADD the following:

One 18" (460 mm) long restrained sample shall be taken by the Contractor from the downstream and/or any intermediate manholes and shall be tested in accordance with ASTM D 2122-98 methods to verify the minimum wall thickness as specified by TABLE 500-1.1.1 (A). The H.D.P.E. shall have the following minimum values when tested in accordance with ASTM standards by an independent testing laboratory approved by the Engineer.

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	Flexural Strength	Flexural Modulus	Tensile Strength	Tensile Modulus	Impact Resistance
ASTM Test	D 790	D 790	D 638	D 638	D 2444
U-Liner	-	110,000-160,000 psi	3,000-3,500 psi	-	pass/fail

Certified copies of all test reports performed by the independent testing laboratory, in accordance with 4-1.4, "Test of Materials" and these specifications shall be submitted to the Engineer.

Finish: The finish of the end seals shall comply with 500-1.4.6.2, "Finished Pipe." The area/annular space between the host pipe and the HDPE liner shall be sealed with the approved epoxy that is compatible with the HDPE liner. During the warranty period, any defect which will affect the integrity or strength of the liner pipe or cause a problem with service connections, due to improper finishing of channels or benches, shall be promptly repaired at the Contractor's expense.

**ADD: 500-1.7.10 Payment.** The unit price for rehabilitating the sewer main in the manner described shall be considered full compensation for furnishing all labor, materials, tools, equipments, apparatus and all incidentals required to do the work.

### **500-1.10 Folded and Reformed PVC Pipe Liner (Types A and B).**

**500-1.10.1 General.** ADD the following:

Folded and reformed pipe liner shall extend the full length of the pipe reach to be rehabilitated and shall provide a structurally sound, impermeable, seamless, joint-less, close-fitting pipe which is tightly adhering to the host pipe. Folded and reformed PVC pipe lining consists of the reconstruction of the gravity sewer pipe by insertion of a preheated, folded PVC pipe which is then further heated and progressively unfolded and expanded against the interior surface of the host pipe. The finished PVC pipe liner, when installed and cooled, shall extend over the installation length in a continuous, tight-fitting "pipe-within-a-pipe" manner. The minimum thickness of the pipe liner shall be in accordance with 500-1.1.1, "General."

The factory test results to show compliance with ASTM D 1784 Cell Classification 13223-B and the requirements of 500-1.10.2, "Type A Folded and Reformed PVC Pipe Liner" for Type A (NuPipe®), or 12111-C and requirements of 500-1.10.3, "Type B Folded and Reformed PVC Pipe Liner" for Type B (AM-Liner®) for each coil of pipe shall be submitted to the Engineer before installation.

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P.V.C. pipe liner when installed and cooled shall have the following minimum values when tested in accordance with ASTM standards by an independent testing laboratory approved by the Engineer.

	Flexural Strength	Flexural Modulus	Tensile Strength	Impact Resistance
ASTM Test	D 790	D 790	D 638	D 2444
NuPipe®	2,200 psi	280,000-320,000 psi	5,000-6,000 psi	pass/fail
AM-Liner®	1,930 psi	155,000-280,000 psi	3,500-5,000 psi	pass/fail

Certified copies of all test reports performed by an independent testing laboratory, in accordance with 4-1.4, "Test of Materials" and these specifications shall be submitted to the Engineer.

**500-1.10.2 Type A Folded and Reformed PVC Pipe Liner.** ADD the following to Paragraph C MATERIAL AND EQUIPMENT ACCEPTANCE:

The Contractor shall submit factory test results and the date the PVC liner was manufactured for each coil of pipe prior to installation for approval. No pipe liner shall be installed later than 6 months from date of manufacture.

ADD the following to Paragraph (f) INSTALLATION AND FIELD INSPECTION:

The Contractor shall furnish and maintain in good condition all equipment necessary for the proper execution of the work as specified. The method of installation shall be compatible with the manufacturer's recommended practices. Before installation, the pipe coils shall be tested by the Contractor in accordance with ASTM D 2122-98 to verify compliance with the minimum wall thickness.

- a) Insertion: The liner pipe shall be inserted into the existing sewer through existing manholes, without modification of the manholes.
- b) Forming: If the liner fails to form, the Contractor shall remove the failed liner and replace it with a new liner. This work shall be performed without additional costs to the City. After the line has been formed, the ends of the liner shall be cut away at both manholes.
- c) Finish: The finished liner shall comply with 500-1.4.6.2, "Finished Pipe." Any defect which will affect the integrity or strength of the liner pipe or cause a problem with the service connections, due to improper finishing of channels or benches, shall be repaired at the Contractor's expense.

**500-1.10.3 Type B Folded and Reformed PVC Pipe Liner.** ADD the following:



The Contractor shall submit factory test results and the date the PVC liner was manufactured for each coil of pipe prior to installation for approval. No pipe liner shall be installed later than 6 months from date of manufacture.

The Contractor shall furnish and maintain in good condition all equipment necessary for the proper execution of the work as specified. The method of installation shall be compatible with the manufacturer's recommended practices. Before installation, the pipe coils shall be tested by the Contractor in accordance with ASTM D 2122-98 to verify compliance with the minimum wall thickness.

**ADD: 500-1.10.7 Payment.** The unit price for rehabilitating the sewer main in the manner described shall be considered full compensation for furnishing all labor, materials, tools, equipments, apparatus and all incidentals required to do the work.

**ADD: 500-1.13.1 General.** ADD the following:

Machine spiral wound PVC liner is intended for use in the rehabilitation of sanitary sewers without excavations. The lining process shall use a continuous PVC profile strip which is machine-wound directly into the existing pipeline from an existing manhole. The process shall be continued until the complete length of the existing pipe has been lined. PVC profile strip for machine spiral-wound liner pipe rehabilitation of existing sewers shall comply with ASTM F1697 except as modified herein.

**500-1.13.6 Installation and Field Inspection.** ADD the following:

Installation of machine spiral-wound PVC liner pipe rehabilitation of existing sewers shall comply with ASTM F1741 except as modified herein.

The existing pipeline shall be cleaned of any obstructions and televised in accordance with 500-1.1.4, "Cleaning and Preliminary Inspection" and 500-1.1.5, "Television Inspection." Existing live service connections shall be precisely located longitudinally, radially and in accordance with 500-1.1.7(a), "Miscellaneous" and 500-1.4.7, "Service Connections" and logged for subsequent reinstatement following insertion of the PVC strip pipe liner.

Coincident with lining forming into a spiral by the winding machine, a bead of sealant shall be injected into the locking elements such that upon cure will create a waterproof seal.

The Contractor shall submit for the Engineer's approval the method and material composition for the end sealing and service lateral sealing material.

**500-1.13.7 Service Connections.** Delete this section and Substitute the following:

Service lateral reconnection shall be re-established and sealed in accordance with 500-1.1.7 (a), "Miscellaneous" and 500-1.4.7, "Service Connections."

**ADD: 500-1.13.9 Material Testing.** For each project, before the winding machine is placed in an insertion point, one pipe sample shall be fabricated from a reel of extruded profile strip, representing each different profile strip extrusion production run of a given profile type used on the Project. The outside diameter of the pipe sample before expansion shall be the same as the inside diameter of the pipe it is to be inserted. The circular sample shall be

of sufficient length that when tested by an independent testing laboratory approved by the Engineer in accordance with the referenced ASTM standards, it shall meet the minimum values in Table 500-1.6.3 (C) and stiffness factor requirements of Table 500-1.6.3 (A) for the type of profile used on the job.

TABLE 500-1.6.3 (C)

	Flexural Strength	Flexural Modulus	Tensile Strength	Tensile Modulus	Impact Resistance
ASTM Test	D 790	D 790	D 638	D 638	D 256
Rib-Loc or Equal	6,000 psi	400,000-440,000 psi	6,000-7,000 psi	400,000-440,000 psi	1.5

The PVC compound shall conform to the chemical resistance test in accordance with 210-2.3.3, “Chemical Resistance Test (Pickle Jar Test).” Certified copies of all test reports performed by the independent testing laboratory, in accordance with 4-1.4, “Test of Materials” and these specifications shall be submitted to the Engineer prior to installation. Sealant for interlocking segments shall be silicone sealant specifically formulated to remain flexible at 50 years after application. Product: GE Silpruf or approved equal.

**ADD: 500-1.13.10 Payment.** The unit price for rehabilitating the sewer main in the manner described shall be considered full compensation for furnishing all labor, materials, tools, equipments, apparatus and all incidentals required to do the work.

**ADD: 500-2.4.6 Primer and Lining Materials.** The primer materials for the polyurethane lining material shall be 100% solids, moisture-tolerant epoxy capable of spray application to 5 mils (127µm) thickness in one continuous coat.

The polyurethane lining material shall be 100% solids, high-build polyurethane capable of spray application to 125 mils (3175µm) thickness in one continuous coat. The material shall meet the requirements of 210-2.3.3, “Chemical Resistance Test (Pickle Jar Test)” and 500-2.4.10, “Applicable Standards”. Proof of meeting these requirements shall be provided to the Engineer for approval at least 15 days prior to commencement of work.

The epoxy lining material shall be 100 percent solids, high-build epoxy capable of spray application to 125 mils (3175µm) thickness in one continuous coat. The material shall meet the requirements of 210-2.3.3, “Chemical Resistance Test (Pickle Jar Test)” and 500-2.4.10, “Applicable Standards.” Proof of meeting these requirements shall be provided to the Engineer for approval at least 15 days prior to commencement of work.

**ADD: 500-2.4.7 Lining Application.** The polyurethane or epoxy lining application shall take place after the APC has cured for a minimum of 24 hours and shall be applied to all concrete surfaces from 3” (75µm) below the low-flow water level to the base of the ring and

cover. Prior to the polyurethane application, the manhole surfaces shall be primed with the epoxy primer to a thickness of 3 mils (76 $\mu$ m) minimum to 5 mils (127 $\mu$ m) maximum. Prior to the epoxy primer becoming tack-free, the polyurethane lining shall be immediately applied to a thickness of 100 mils (2540 $\mu$ m) minimum to 125 mils (3175 $\mu$ m) maximum. The epoxy lining shall be applied to a thickness of 100 mils (2540 $\mu$ m) minimum to 125 mils (3175 $\mu$ m) maximum. The finished polyurethane or epoxy lining shall be uniform in color, fully cured, and free of pinholes, surface imperfections, and blisters.

**ADD: 500-2.4.8 Test.** The cured epoxy and polyurethane lining shall be subjected to adhesion (bond) testing. A minimum of three 20mm dollies shall be fixed to the lined surface of each selected manhole as determined by the City and will be pulled in accordance with ASTM D4541, utilizing an Elcometer 106 instrument. The failure shall be in the substrate concrete at no less than 300 psi. For any given lining failure, one additional manhole shall be added to the initial number of manholes to be tested. The City will further evaluate any areas detected to have inadequate adhesion. Further adhesion testing may be performed to determine the extent of potentially deficient bonded area. Repairs shall be made in accordance with 500-2.4.9, "Repair Methods."

The cured polyurethane lining shall be spark tested for pinholes, in the presence of the Engineer, with a spark tester set at 15,000 volts minimum. Pinholes shall be repaired in accordance with 500-2.4.9, "Repair Methods." The cured epoxy lining shall be spark tested for pinholes with a spark tester initially set at 12,500 volts, or 100 volts in accordance with 1 mil of film thickness applied, but may be adjusted as necessary to detect an induced holiday.

**ADD: 500-2.4.9 Repair Methods.** Defects in the APC shall be repaired in accordance with 303-2, "Cross References." Pinholes in the protective lining shall be marked off on surface areas containing pinholes to a point 6" (150mm) beyond all pinholes and recoated with the epoxy lining or, primed with epoxy, primer and recoated with polyurethane to a minimum additional thickness of 30 mils (762 $\mu$ m). Blisters, uncured lining, and surface imperfections shall be completely removed and the areas recoated with the epoxy lining or epoxy primer and polyurethane lining to a point 6" (150mm) beyond the repair areas at a minimum thickness of 100 mils (2540 $\mu$ m).

**ADD: 500-2.4.10 Applicable Standards.** APC, epoxy primer, and polyurethane or epoxy lining shall meet or exceed the requirements specified in 303-2, "Cross References" and Table 500-2.4.10 (A).

TABLE 500-2.4.10 (A)

	Polyurethane	Epoxy Primer	Epoxy
Tensile Strength	13.8	41.4	51.7
ASTM D 638, Type IV, MPa (psi)	(2,000)	(6,000)	(7,500)
Elongation at Break, %			
ASTM D 638, Type IV	50	5	1.5
Wear Resistance, mg. wt. loss			
Taber abrasion, S-17	60	100	115
Hardness, Shore D, Durometer			
ASTM D 2240	55	75	85
Tear Resistance, kg/mm (ppi)	2.7		
ASTM D 903	(150)	N/A	N/A
Peel Strength, Concrete, g/mm (pli)	125	125	N/A
ASTM D 903	(7) <sup>1</sup>	(7) <sup>1</sup>	N/A
Adhesive Strength, kPa (psi)	2,760	2,760	N/A
ASTM C 190 (modified) Briquet, PCC	(400) <sup>1</sup>	(400) <sup>1</sup>	N/A
ASTM D 4541, Concrete, mode of failure	concrete	concrete	concrete

1. Tested as a system.

Test results shall be verified on a per job basis or as required by the Engineer.

**ADD: 500-2.11 CURED-IN-PLACE MANHOLE LINER (CIPM) LINER:**

**500-2.11.1 General.**

CIPM liner for the rehabilitation of manhole shall include the furnishing of all labor, materials, and equipment for the rehabilitation of an existing manhole with the installation of tailored fabric liner system covering the inside surface of manhole wall and shelf. The fabric shall be impregnated with epoxy resin and placed tight against the manhole wall and shelf and cured with pressurized steam.

**500-2.11.2 Material Composition and Testing.**

The fabric liner shall contain PVC membrane, one or more layer of polyester fleece and fiberglass reinforcement. The material shall be compatible with and capable of carrying epoxy or epoxy-vinyl-ester resin, be able to withstand installation pressure and curing temperature between 160 and 200 degree Fahrenheit. The approved epoxy shall be compatible with the application and be able to cure in the presence of hot steam. The initiation temperature for cure shall be as recommended by the resin manufacturer and approved by the Engineer. The CIPM liner shall comply with ASTM D695-96, ASTM D790-97 and ASTM C857 and shall have, as minimum, the structural properties in accordance with Table 500-1.4.2 (A).

The Contractor shall provide Field –cured samples as directed by the Engineer.

**500-2.11.3 Resin and Fabric Acceptance.** Resin and fabric shall comply with 500-1.4.3, “Resin and Tube Acceptance.” The fabric shall be custom tailored to fit any shape manhole wall including base, cone, and risers. The fabric shall be tailored such that, after curing, the maximum allowed pliable wrinkles do not exceed 1/2” ply. Excessive wrinkles or plies shall be subject of rejecting the rehab work. The Contractor shall assure maximum resin coverage where plies are anticipated.

The minimum design thickness of the fabric shall be: 20 mills PVC membrane, 10oz/yd<sup>2</sup> of polyester fleece backing and 18 oz/yd<sup>2</sup> of fiberglass backing. The minimum total composite thickness shall be 88 mills.

The fabric shall be completely submerged in resin to allow for maximum absorption. Resin containment shall be the Contractor responsibility

**500-2.11.4 Chemical Resistance.** The CIPM liner system shall comply with section 500-1.4.4, "Chemical Resistance."

**500-2.11.5 Installation.** Prior to placing the liner, the manhole shall be cleaned in accordance with 500-2.4.2, "Spark Test." The Contractor shall repair spalled or deteriorated concrete in accordance with 500-2.4.3, "Mill Gauge Test," 500-2.4.4, "Adhesion Testing" and 500-2.4.5, "Liner Repairs."

Installation shall be by an installer that is qualified by the liner manufacturer. The Contractor shall include the furnishing of all materials, equipment, tools, and labor as required for the rehabilitation of the manholes selected, including the installation of the interior liner. The installation of the approved liner system shall be in strict accordance with the manufacturer's instructions. This shall include the preparation, installation, inflation, curing, and finishing operation required for the completion of the manhole rehabilitation process. Safety rules and regulations applicable laws and insurance requirements shall be observed in storing, handling, use and application of the liner materials, resins and any solvents. Ventilation shall be provided to the workers at all times.

The liner shall be installed and cured in place via controlled curing by heat and pressurization (2 to 5 psi) in the manhole to complete the curing process in less than 2 hours.

The lining of the manhole shall result in a monolithic structure to the shape and contour of the existing manhole. The liner shall be installed and bond to the interior manhole substrate and completely watertight, free of any joints or openings.

**500-2.11.6 Warranty.** The manufacturer shall warrant to the City in writing the installation, fabrics, and resins to be free of defects in workmanship and materials for a period of ten years.

**500-2.11.7 Payment.** Payment for the rehabilitation of the manhole shall be made at the contract vertical foot price and shall include all necessary labor, material and equipment to clean, repair and line the manhole as specified herein. The vertical foot liner measurement is defined as the distance between the top of shelf to the manhole cover seat.

## PART 6

### SECTION 600 - MODIFIED ASPHALTS, PAVEMENTS AND PROCESSES

**600-3.2 Materials.** DELETE in its entirety and SUBSTITUTE the following:

Rubberized Emulsion-Aggregate Slurry (REAS) shall consist of a mixture of rubberized polymer modified emulsion (RPME), aggregate, crumb rubber, polymer modifier (latex 2% min.), and water mixed and spread evenly on street surfaces as specified herein and as directed by the Engineer. The cured slurry shall have a uniform appearance, fill all cracks, adhere firmly to the surface, and have a skid-resistant surface. The slurry shall cure so that it resists abrasion by slow traffic within sixty minutes after placement and be fully usable by all types of traffic within 2 hours. Mixing and spreading of REAS shall be in accordance with 302-4, "Emulsion-Aggregate Slurry" of these specifications.

**600-3.2.3 Crumb Rubber.** ADD the following:

One 100% of the crumb rubber shall be a product of recycled material from the City, if unavailable, from the San Diego County region.

**600-3.2.5 Aggregate.** ADD the following:

Type I slurry aggregate will be allowed. The aggregate shall be of such character that it will not disintegrate from the action of air, water, or the conditions to be met in handling and placing and having a specific gravity of no less than 2.60. It shall have a minimum sand equivalent of 55.

**600-3.5 Field Sampling.** ADD the following:

The cost of materials testing for quality assurance shall be borne by the City. The cost for any retesting as a result of the Contractor's failure to meet the requirements of these specifications shall be charged to the Contractor and deducted from payment due.

**600-3.7 Measurement and Payment.** ADD the following:

If the results of the aggregate grading do not meet the gradation specified, the slurry represented by such test shall be removed. However, if requested in writing by the Contractor and approved by the Engineer, the slurry may remain in place and the Contractor shall pay the City \$1.00 per gallon for such slurry left in place.

If the results of the Sand Equivalent test for aggregate do not meet the requirement specified, the slurry represented by such test shall be removed. If requested in writing by the Contractor and approved by the Engineer, the slurry may remain in place and the Contractor shall pay the City \$1.00 per gallon for such slurry left in place.

When the results of both the aggregate grading and the Sand Equivalent test do not conform to the requirements specified, both payments to the City will apply. The City may deduct these amounts from any monies due, or that may become due, the Contractor under the Contract.

**ADD: 600-4 CRACK SEAL WORK.**

**600-4.1 General.** Cracks 1/8" or wider shall be specially sealed prior to the application of slurry. The Contractor shall seal only transverse, longitudinal, block or reflective cracks. The Contractor shall not seal alligator (fatigue) cracked areas.

The Contractor shall be responsible for any and all damage or claims resulting from its operations. This shall include sealant adhering to vehicle paint and tracking of sealant into residences.

**600-4.1.1 Material.** Crack sealant material used shall be Road Works 306, or CRAFCO Polyflex Type 3, or equal. Sealant shall be prepared and applied to the pavement cracks in conformance with all manufacturers' instructions except where noted otherwise in this specification.

**600-4.1.2 Equipment.** Cracks shall be cleaned using a hot compressed air lance (HCL) apparatus. Air exiting the lance shall be heated to a temperature sufficient enough to remove the oxidized surface from the crack walls. The HCL shall meet the following specifications:

- a) Compressed air capacity: 40 to 100 cfm, 75 to 150 PSI
- b) Heated air temperatures: 600 to 2,200(F)
- c) Exit heated air: 1,000 ft per sec.
- d) Propane: 5 to 20 PSI

Prior to beginning work, the Contractor shall submit, to the Engineer, documentation certifying that each HCL apparatus to be used on the Project meets the above specifications. This documentation is required at the start of new projects. If a lapse in the Project exceeds 7 Working Days, re-certification is required and documentation shall be resubmitted.

**600-4.1.3 Application.** Cracks to be sealed shall be completely clean, dry, and free of all loose material, vegetation, and any other foreign substances which may cause the sealant not to adhere to the crack wall. The Contractor shall clean and dry all cracks with the HCL immediately before sealing.

Sealant shall be applied from the bottom of the crack up to the surface in a manner which does not result in sealant bridging or pockets of entrapped air. The sealant shall be applied to a slightly overfilled condition and then leveled with a squeegee. The width of sealant remaining on the surface shall exceed 1.5" on either side of the crack.

Any debris blown onto adjacent gutters, sidewalks, parkways, medians, intersections or other areas shall be removed prior to the end of the Working Day.

**600-4.1.4 Payment.** Cracks that are not cleaned or sealed shall be rejected and all costs incurred for removal and replacement of the rejected areas shall be borne exclusively by the Contractor.

Payment for Crack Sealing shall be included in the other Bid items unless a Bid item unit price per linear foot has been provided for "Crack Seal."



## **ADD: PART 7 WATER WORKS**

### **SECTION 700 – WORK INVOLVING THE CITY FORCES**

#### **700-1 CITY FORCE WORK.**

##### **700-1.1 General.**

This section covers items of Work that involve coordination with and the services provided by the City Forces. If Additive Alternates are included in the Bid and awarded for the Contractor to provide services that are typically provided by the City Forces, the applicable specifications in this section shall become effective.

The City Forces, the Contractor, or both will be responsible for providing the residents with water service, by means of high-lining (i.e., temporary above ground supply lines), during construction as shown on the Plans.

The City Forces will isolate the water system, by closing valves, cutting and plugging, or both unless otherwise specified in the Contract Documents.

The City's Water Department Program Coordinator, (619) 527-7423, shall be notified by the Contractor 30 Working Days prior to beginning of Work that involves high-lining, cutting and plugging of, or making connection to the exiting water mains. The Contractor and the City shall keep each other informed so that construction will be closely coordinated. The beginning of each part of the Work shall be scheduled at the pre-construction meeting. The information on low demand times is available from the City's Water Department.

The City is responsible for cost of the City Forces work. The Engineer will coordinate all interactions between the Contractor and the City Water Operations Division, the City Water Quality Laboratory, and other City organizations.

The Work shall be done in accordance with AWWA standards and State Department of Public Health codes.

**700-1.2 High-lining.** The City Forces will be responsible for high-lining as part of the base Bid. If an Additive Alternate is part of the Bid Documents and awarded for high-lining, high-lining shall be the responsibility of the Contractor.

##### **700-1.2.1 High-lining by the City Forces.**

**700-1.2.1.1 Furnishing Materials.** If required in the Contract Documents and a separate Bid item is provided for the Contractor furnished materials for City Force's work, the Contractor shall furnish the necessary materials for the City Forces' work as shown on the Plans to the City. The Contractor shall coordinate closely with the City Forces for the delivery of materials. The delivery location for furnished materials shall be determined by the City Forces. No materials shall be delivered to the City until the City Forces are ready to

construct the work. Unless otherwise specified in the Contract Documents, the City will retain the high-lining materials at the end of construction.

**700-1.2.1.2 High-Lining Removed by the Contractor.** If the City Forces are not available to remove the high-lining materials, the Engineer will direct the Contractor to pickup and deliver all the City high-lining materials to Water Operations Division at: Chollas Station, 2797 Caminito Chollas, San Diego, CA 92105.

The City's Water Utilities Coordinator, (619) 527-7423, shall be contacted by the Contractor 5 Working Days before delivery of the high-lining material. After removal of high-lining materials, the Contractor shall repair all trenches created for the installation of the high-line and remove all excess temporary resurfacing materials. No high-lining materials shall be removed until the City Forces have disconnected the high-line from the water system.

**700-1.2.1.3 Payment.** The payment for the furnished material for the City Force high-line work shall cover materials (i.e., fittings, valves, and hardware) including delivery and unloading. The Contractor will be paid under the Bid item for "Contractor Furnished Materials for the City Forces High-line Work."

If the Contractor requests the City Forces to high-line in excess of what is shown on the Plans, those costs for high-lining will be borne by the Contractor and billed to the Contractor. Costs will be billed at the current hourly rates (loaded) according to the schedule available for the Water Department.

If high-lining by Contractor is awarded under "Additive Alternate", payment for high-lining removed by Contractor shall be included in the unit price bid for "High-lining Installation and Dismantling". Otherwise, if the City Forces install the high-line system and the Contractor is requested to remove the high-lining, payment shall be in accordance with the unit price bid for "High-lining Removed by Contractor" in the base Bid.

**700-1.2.2 High-lining by the Contractor.** When required, the Contractor shall bypass sections of the existing water main line with a temporary above-ground supply line (high-line) as shown on the Plans and in phases shown on the Schedule.

- a) Contractor shall phase the Project such that all structures in the area are within 1,000 feet of an active fire hydrant, measured using streets, private roads, or other routes driven by emergency vehicles. Phases are required so that the high-line provides sufficient water pressure to affected properties.
- b) The Work includes shutoff valves to isolate sections of the high-line if there is a leak or break to minimize the water service shutdowns.
- c) The high-line system shall provide continuous full service to connected water services until the new water main line is installed and in operation. The Work shall be coordinated, scheduled, and performed to minimize disruption of water services during installation and removal of the high-line system.
- d) The Contractor shall flush, disinfect, and leak test the high-line in accordance with the applicable codes and regulations prior to the City Forces' connection work to

begin. The City Forces will perform all connections and disconnects to meters and fire hydrants. Bacteriological sampling and testing will be performed by the City Water Quality Laboratory.

- e) The Contractor shall maintain the high-line system as specified at all times.
- f) The Contractor shall ensure proper installation, pressure control, or operation of the high-line to avoid damage to water users' property and related public health and safety issues.
- g) City Forces will reconnect water services to the new water main. The Contractor shall dismantle and remove the high-line system from the Site, and restore streets, gutters, fire hydrants, and other disturbed facilities and surface improvements within 5 Working Days from the time the City Forces complete their reconnections.
- h) Water services which are not high-lined by City Forces shall be transferred or extended only after the adjacent sections of the new main have been fully constructed, hydrostatic and chlorine residual tested and certified acceptable by the Water Utilities Department.
- i) The Contractor shall install such transfers and extensions or new services in such a manner as to reduce to a minimum the interval of time for which the water service to any customer is interrupted. The Contractor shall, once service is interrupted, diligently pursue without stop, the required work until service has been fully restored to all customers. Cleanliness of the main shall not be compromised; otherwise, the Engineer will decide whether re-disinfection is required at the Contractor's expense.
- j) Services shall be thoroughly flushed by the Contractor prior to restoration of water supply to customer's premises. The contractor shall be responsible for backwater device assembly in accordance with detail drawing on plans. The price bid for backwater device assembly shall be in accordance with 2-6, "WORK TO BE DONE"
- k) The Contractor shall provide the Engineer a schedule for the high-line work at least 30 days prior to work required by the City Forces (e.g., connections or disconnects).

**700-1.2.2.1 Reference Specifications, Codes, and Standards.** Reference specifications, codes, and standards shall be the latest unless a specific code issue date, edition, or adoption date is specified.

- a) The Work shall be in accordance with the applicable parts of the following codes and safety regulations:
  - i. Uniform Fire Code.
  - ii. Uniform Mechanical Code.
  - iii. Uniform Plumbing Code.
  - iv. City of San Diego Water and Municipal Sewer Approved Materials List, where applicable.

- v. State Department of Public Health (previously known as DHS), Office of Drinking Water publication titled, "Approved for Service Isolation in California Public Water Systems."
  - vi. Applicable the City, local, state, and federal codes and regulations.
- b) The Work shall be in accordance with the following commercial and industrial standards:
- i. ANSI/AWWA C 606 - Grooved and Shouldered Pipe Joints.
  - ii. ASTM A 53 - Specification for Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.
  - iii. ASTM A 123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - iv. ASTM A 153 - Standard Specification for Zinc Coating (Hot-Dipped) on Iron and Steel Hardware
  - v. ASTM A 307 - Specification for Carbon Steel Bolts and Studs, 6,000 PSI Tensile Strength.
  - vi. ASTM A 395 & 536 - Specification for Snap-Joint Coupling grade 65 45-15 and grade 64-45-12 coating orange enamel.
  - vii. AWWA C 511 - Standard for Reduced Pressure Principle Backflow Prevention Assembly.
  - viii. AWWA C 651 - Disinfecting Water Mains

**700-1.2.2.2 Submittals.** Prior to the start of Work, the Contractor shall submit the following in accordance with 2-5.3, "Submittals:"

- a) Itemized list of all high-line materials to be used.
- b) Catalog data for all high-line materials and components required.
- c) High-line system installation and detail drawings (i.e., shop and working drawings) prior to ordering/purchasing material.
- d) High-lining schedule prior to ordering/purchasing material of any part of the high-line system.
- e) Approved Traffic Control Drawings to Traffic Control Section and obtain a permit a minimum of 2 Working Days (5 Working Days when the work affects a traffic signal) prior to ordering/purchasing material of each phase of the high-line system.

**700-1.2.2.3 Quality Assurance.** The high-line system shall be flushed, tested for leaks, and disinfected in accordance with 700-1.1.2.7, "Start-Up Procedures" and shall pass the specified bacteriological tests prior to the City Forces making the connection.

**700-1.2.2.4 Materials.** Materials shall be in good condition and free of defect. The Contractor shall procure pipe, fittings, adapters, materials, and components required for a complete and operable high-line system installation. Products and materials shall be suitable for the intended purpose, free of defects, and recommended by the manufacturer for the application intended. Hoses shall be used only at corners and curves and for connections to user's service meter(s).

- a) Pipe. Pipes shall be fabricated largely in sections of 2" Galvanized steel pipe and conform to the following:
  - i. ASTM A 53 or other equal ASTM galvanized pipe standard.
  - ii. Minimum wall thickness shall be Schedule 40 (0.154 inches).
  - iii. Pipe ends shall be machine cut or rolled for grooved couplings and fittings in compliance with ANSI/AWWA C 606.
  - iv. Fittings and Couplings.
- b) Fittings shall be ductile iron. Fittings and couplings, including tees, reducing tees, laterals, wyes, elbows, pipe couplings, reducers, caps, plugs, and adapters, shall have standard flexible grooved mechanical joint connections in compliance with ANSI/AWWA C 606. Minimum pressure rating shall be 200 PSIG.
  - i. Housing material shall be ductile iron coated with the manufacturer's standard painting system. Coupling gasket material shall be standard Ethylene-Polypropylene Diene Monomer (EPDM) rubber.
  - ii. Couplings shall be Victaulic Style 78 or equal.
  - iii. The branch outlet of reducing tees shall be one inch (1") male pipe thread. Connections of standard tees shall be grooved.
  - iv. Grooved elbows with 11¼, 22½, 45 and 90-degree bend angles will be required to configure the high-line piping system to existing bends and contours at the Site.
  - v. Manufacturers: Victaulic, Mech-Line, or equal.
- c) Meter connections.
  - i. For meters up to 1" size, the connections shall be 90-degree, long radius, brass elbow couplings with a swivel meter nut on one end and male pipe threads on the other.
    - A. The swivel meter nut shall be sized to fit the specific meter. The male pipe thread end shall be fitted with a galvanized steel "Chicago" two (2)-lug, quarter-turn, quick disconnect hose fitting-to-female pipe thread fitting.
    - B. Manufacturers: James Jones Co., Ford Meter Box Co., Inc., or equal.

- ii. For meters larger than 1-inch, the connections shall be elbows with a two (2)-bolt Class 125 flange on one end and female pipe threads on the other.
  - A. The flange shall be sized to fit the specific meter. The female pipe thread end shall be fitted with a short pipe thread to grooved connection adapter nipple.
  - B. Alternately, the assembly can be a 2-bolt Class 125 flange-to-male pipe thread fitting, a threaded pipe elbow, and a short pipe thread-to-grooved connection adapter nipple.
  - C. Manufacturers: James Jones Co., Ford Meter Box Co., Inc., or equal.
  - D. Bushings, reducers, and adapters. The City Forces shall be responsible for all fit-up and connections in the system. The Contractor shall provide all bushings, reducers, and adapters required to connect the high-line system to the existing fire hydrants, meters, and other facilities at the Site. Bushings, reducers, and adapters shall be provided at no additional cost to the City.
  - E. Pipe-to-hose adapters. For 1" hoses, the adapter shall be a 1", galvanized steel, "Chicago" 2-lug, quarter-turn, quick disconnect hose-to-female pipe thread fitting.
  - F. Fire hydrant-to-pipe connectors, the actual connection to the live Fire Hydrant to be done by the City Forces shall be a brass or bronze 1.5" female fire hydrant thread to 2" male pipe thread fitting.
- d) Bolts and Fasteners. Bolts and fasteners, including bolts, nuts, and washers, shall meet the minimum requirements of ASTM A 307, and shall be hot dipped galvanized according to ASTM A 153. All bolts shall be installed with nuts face down.
- e) Valves.
  - i. Pipe shutoff valves shall be 2", lever handle, two-position, manual butterfly valves with grooved mechanical connections in compliance with ASTM C 606. Minimum pressure rating shall be 200 PSIG.
    - A. Housing material shall be ductile iron coated with the manufacturer's standard painting system. Seal material shall be standard EPDM rubber.
    - B. Manufacturers: Victaulic, Mech-Line, or equal.
  - ii. Curb stop valves shall be bronze full-port ball valves without handles.
    - A. Seats shall be molded Buna-N rubber or other approved material. The ball shall be Teflon-coated brass or bronze. Approved plastic ball materials will be considered as substitutes.

- B. Size shall be 1-inch with female pipe thread connections. Other sizes and end connections may be required to accommodate specific user connections.
  - C. Manufacturers: James Jones Co., Ford Meter Box Co., Inc., A. Y. McDonald Mfg. Co., or equal.
- f) Hoses.
- i. User connection (Service Meters).
  - ii. For meters up to 1", the hose shall be a 1" standard general service air compressor hose with EPDM cover and 300 WP rating. End connections shall be galvanized steel, "Chicago" 2-lug, quarter-turn, quick disconnect fittings banded to the hose.
  - iii. Manufacturer: Thermoid, or equal.
  - iv. Curves and curbs.
  - v. Hose shall be 2" standard general service air compressor hose with EPDM cover and 300 WP rating. End connections shall be galvanized steel grooved mechanical end fittings in compliance with ASTM C 606 banded to the hose.
  - vi. Manufacturer: Thermoid, or equal.
- g) Check Valves.
- i. Check valves shall be swing check type with grooved mechanical connections in compliance with ASTM C 606. Minimum pressure rating shall be 200 PSIG.
  - ii. Housing material shall be ductile iron coated with the manufacturer's standard painting system. Seal material shall be standard EPDM rubber.
  - iii. Manufacturers: Victaulic, Mech-Line, or equal.
- h) Backflow Preventers.
- i. Shall meet the requirements stated in the City of San Diego Standard Drawings SDW-140, "San Diego Regional Standard Drawings", WR-01, "19mm thru 50mm (3/4" thru 2") Reduced Pressure Backflow Prevention Device" and/or WR-02, "100mm (3") and Larger Reduced Pressure Backflow Prevention Device" for Backflow Preventers.
  - ii. Shall meet the requirements of AWWA C 511.
  - iii. Manufacturer and model shall be approved by Department of Public Health (previously known as DHS).
- i) Pressure Regulators.
- i. If required, the Contractor shall provide 2" pipe size of bronze or ductile iron construction. Materials, coatings, seals, diaphragms, and trim shall be



approved for potable water service. Connections shall be pipe threaded union couplings.

- ii. Pressure ratings and regulation ranges shall be approved for the pressure zones involved.
- iii. Manufacturer: Braukmann or equal.
- j) Temporary Asphalt (Coldmix). Temporary asphalt shall be provided by the Contractor on a unit price basis.
- k) Pipe Supports.
  - i. Shall be adjustable type and fabricated from galvanized carbon steel.
  - ii. Manufacturers: Grinnell, Tolco, or equal.

### **700-1.2.2.5 Construction.**

- a) Authorization. The Contractor shall not order/purchase material of any part of the high-line system without an approved submittal and written authorization by the Engineer.
- b) Workmanship.
  - i. Contractor workmanship shall meet the accepted standards of the trades involved.
  - ii. High-line piping systems shall be installed and maintained such that they are neat, orderly, and leak-free, and shall be arranged to minimize interference with or present a hazard to normal usage of streets, sidewalks, driveways, and other affected facilities.
  - iii. High-line piping systems shall be installed in such a manner that it does not cause flooding to the surrounding area.
  - iv. Excess materials and debris shall be removed from the Site by the end of the Working Day on which they are generated.
- c) Water Users Notification. The Contractor shall coordinate the Work to minimize the duration of water shutdowns and outages.
- d) Emergency Telephone.
  - i. The 24-hour Emergency Services telephone number which shall be listed in user notifications, imprinted on safety barricades, and posted in the Work area shall be the Contractor's emergency number.
  - ii. On receipt of notification of a problem in the work area, the Contractor shall notify the Engineer, Water Operations Division (City Forces), and Emergency Services as appropriate.
- e) Repair and Maintenance.

- i. The Contractor shall maintain the temporary asphalt (coldmix) protective ramps for the duration of the high-line installation. Coldmix damage discovered or reported shall be repaired that same day by the Contractor. Payment for repairs and maintenance shall be included in the Bid item for “Hi-Lining Maintenance and Repairs.”
  - ii. The Contractor shall repair and maintain the high-line system at all times.
  - iii. Leaks or damage shall be repaired within one hour of discovery or reporting. These repair criteria shall apply to leaks or damage arising for any reason, including vandalism and damage by Contractor personnel, equipment, or work activities.
  - iv. If the repair involves any disassembly of the system, the Contractor shall disinfect and flush the affected components according to AWWA C 651. This will be done in the presence of the City Water Department, Water Operations Division employee familiar with the water system.
  - v. Repair work shall be inspected and approved by the Engineer and the City Water Department, Water Operations employee familiar with the water system. At the sole discretion of the Engineer, the Contractor shall be billed separately for non-responsive or otherwise unacceptable repair and maintenance work that the City must do to restore any service.
- f) Problem Reporting. High-line system problems discovered or reported and corrective actions taken shall be documented in the Contractor’s Daily Log and reported to the Engineer within 24 hours of the discovery or report.
- g) Traffic Control. The Contractor shall provide traffic control for all high-line work.
- h) Schedules and Timing.
- i. Schedule. The time required to furnish and install the high-lining system (as a whole or in accordance with phases), shall be included in the total Contract Time. In addition, the cost of the schedule shall be included in the “Additive Alternate A” total cost. The schedule shall be submitted to the Engineer for review and approval.
  - i. The Contractor shall coordinate high-lining operations such that the overall water main replacement project schedule is not affected or delayed.
- i) Installation.
- i. High-line Piping System.
  - ii. The high-line piping system shall be installed in accordance with approved schedule, approved submittal, and/or as directed by the Engineer and City Water Department, Operations Division familiar with the water system.

- iii. Piping phases shall be installed in loop systems, with a fire hydrant connection to the water supply at each end.
  - iv. The high-line piping system shall be inspected and approved by the City Water Department, Operations Division familiar with the water system via the Engineer prior to the City Forces charging the system with potable water or connecting to any user service line.
  - v. The high-line piping shall be installed along both sides of streets to supply water service connections to water meters. In no case shall a meter service connection be routed across a roadway, driveway, or other area subject to vehicular traffic.
  - vi. Shutoff valves shall be installed at each fire hydrant connection, along the piping runs at the ck, on either side of high-line tee fittings for user connections to all meters and at the ends of cul-de-sac blind runs to permit flushing. The lever handles shall be removed from the valves to prevent unauthorized operation.
  - vii. The two-bolt grooved couplings shall be installed with the bolts oriented as shown on Figure 5, Typical Curb Piping Runs. This orientation permits the pipe to be laid closer to the curb and is less susceptible to damage by auto traffic. To prevent damage to auto tires, coupling bolts shall not extend beyond the thickness of the nut when installed and tightened.
- j) Fire Hydrant Connection.
- i. The fire hydrant connection shall be laid as shown in Figure 1 and Figure 6, Typical Fire Hydrant Connection by the Contractor. The City Forces will make the final connection to the Fire Hydrant system.
  - ii. The Contractor shall use elbows of different bend angles and shall be used as required to align the connection fittings parallel to the sidewalk or curb.
  - iii. In situations where the fire hydrant is located such that piping must cross a sidewalk, piping shall be routed under the sidewalk surface in a 6" wide x 6" deep (approximate dimensions) saw cut trench by the Contractor. The trench backfill and temporary asphalt surface shall be tamped and compacted to provide a smooth, safe surface for the duration of the high-lining by the Contractor. Routing the pipe above the sidewalk shall not be permitted.
- k) User Connection (Service Meters).
- i. Contractor to furnish and install all material and labor as described; the City Forces will make the actual connection to the system, see Figure 2.
  - ii. Connection to meters sized up to 1-inch shall be as shown in Figure 2, Typical User Connection, 1-inch Meter.

- iii. Connection to meters 1½" and larger shall be made with 2" galvanized steel pipe with grooved connections.
  - iv. A shutoff valve in the user connection line shall be provided at the high-line tee fitting.
  - v. Meters 1½" and larger typically have 2-bolt flanged connections. Provide adapters as required to connect to specific meters.
  - vi. Sidewalk crossings may be routed above ground and ramped with temporary asphalt (coldmix) similar to Figure 3, Typical Driveway or Handicapped Access Crossing, and as required elsewhere in this section.
  - vii. Field cut, groove, and fit 2" galvanized steel pipe, as required to make user connections. Sections of the high-line piping shall be cut such that service tees are as close as possible to the user meters and service connection hose or piping length is minimized.
  - viii. Provide barricades and cones as required by the approved Traffic Control Plan, at service tees and meters, and as required to ensure public safety.
- l) Roadway Crossing and Trenching.
- i. Portions of the high-line system should be trenched and buried by the Contractor to avoid interference with roadways and walkways.
  - ii. Wherever piping is required to cross a roadway, piping shall be routed below the roadway surface in a 6" wide x 6" deep (approximate dimensions) saw cut trench. Routing the pipe above the roadway shall not be permitted.
  - iii. The trench backfill and temporary asphalt surface shall be tamped and compacted to provide a smooth, safe surface for the duration of the high-lining.
- m) Vehicle Driveway or Curb Ramp Crossing.
- i. Wherever the high-line piping crosses a vehicle driveway or curb ramp crossing, the piping shall be provided with temporary asphalt (coldmix) crossing ramps as shown in Figure 3, Typical Driveway or Curb Ramp Crossing. 2. The temporary asphalt (coldmix) crossing ramps shall be tamped and compacted to provide a smooth, safe surface for the duration of the high-lining.
  - ii. The temporary asphalt (coldmix) crossing ramps shall be constructed such that they do not interfere with normal storm water or other drainage flows, see Figure 3 and 4. They shall not divert drainage flows either into the street or onto adjacent properties. Where required to achieve proper drainage, sections of galvanized steel piping shall be installed in the crossing ramp parallel to the high-line piping to allow for drainage past the crossing ramp. Crossing ramp installations shall be inspected and approved by the Engineer.
- n) Corners and Curves.

- i. Routing the high-lining system around corners and curves shall typically be accomplished by use of 2" hose.
- ii. A 2" shutoff valve shall be installed at each end of the curve.
- iii. Portions of corners and curves with driveways or curb ramps shall be crossed with galvanized steel pipe as shown on Figure 3 and 4. Use of hose shall not be permitted at these crossings.
- iv. Corners and curves with bend radii too short to be accommodated by hose shall be routed with short sections of galvanized steel pipe and grooved elbows of different bend angles. Pipe shall be cut, grooved, and fitted in the field as required.
- v. Portions of the piping and fittings extending 12" or more from the curb shall be protected with an asphalt coldmix covering of not less than 1 inch thickness above the pipe and fittings. The coldmix shall be sloped over the pipe and tamped in place to provide a durable surface.

### **700-1.2.2.7 Start-up Procedures.**

- a) Flushing, disinfection, and bacteriological testing of high-line mains. At no time will the Contractor be allowed to use the high-line system to fill and flush any main or piping.
  - i. After the high-line system is fully assembled but not hooked-up to the consumer meters, the Contractor shall flush the piping with potable water from a commercial metered source until the effluent is clear and free of dirt and debris. The Contractor shall designate the disposal of flushing water via approved methods.
  - ii. The Contractor shall disinfect the high-line piping according to AWWA C 651 and 306-1.4.7, "Disinfection."
  - iii. Disinfection operations shall be performed by competent persons, knowledgeable and experienced in the operation of the necessary application and safety equipment, and the applicable federal, state, and local laws and regulations. The transport, storage, and handling of disinfection materials shall be in accord with the Code of Federal Regulations (CFR) 1910.120, Hazardous Waste Operations and Emergency Response, CFR 49.12 Hazardous Materials Regulations, and the General Industry Safety Orders of the California Code of Regulations, Title 8, Section 5194.
  - iv. Pipeline disinfection shall be accomplished with calcium hypochlorite tablets. Short pipe sections, valves, fittings, and similar small portions of the system shall be disinfected with a solution of sodium hypochlorite.
  - v. The Contractor shall notify the Engineer five days in advance of the date that the high-line system will be disinfected and ready for bacteriological testing.

- vi. The City Water Quality Laboratory shall collect samples from three points in the high-line piping. Two points shall be from taps near the fire hydrant connections at each end, and one from a tap near the center of the piping.
  - vii. The City Water Quality Laboratory shall perform bacteriological testing in accordance with AWWA C 651 and the City standards.
  - viii. The high-line system shall not be accepted until two consecutive sets of acceptable samples collected 24 hours apart pass tests administered by the City Water Quality Laboratory, and until written notice of acceptance is issued by the Engineer. The City Water Quality Laboratory shall be the sole judge as to whether or not the test samples meet or exceed the established test criteria.
  - ix. In the event that the high-line piping system fails to pass the required bacteriological testing, the Contractor shall re-flush and re-disinfect the lines at no additional cost to the City. Disposal of chlorinated water shall be in accordance with the City standards and regulations. Indiscriminate disposal of chlorinated water shall not be permitted.
  - x. On acceptance of bacteriological testing, the Contractor shall drain and flush the highline piping system according to AWWA C 651 and the City standards. Disposal of chlorinated water shall be in accordance with the City standards and regulations. Indiscriminate disposal of chlorinated water shall not be permitted.
- b) System leak test. The Contractor shall:
- i. Charge the system with available water pressure, bleed the system of air, and verify that the entire system is filled.
  - ii. Visually inspect the system for leaks and repair any leaks discovered. The system will not be accepted by the Engineer until all leaks are repaired.
- c) Restoration of Normal Service.
- i. Flushing of the New Main Line. The Contractor shall not flush the new main line with water from the high-line system.
  - ii. User Hook-up to the New Main Line.
    - A. Restoration of user service to the new water main line shall be done only after installation, disinfection, and bacteriological testing of the new water main line and user connection lines are completed.
    - B. Transfer of the water service from the high-line to the new water main line shall be performed by the City Water Operations Division personnel. The Contractor shall coordinate the appropriate schedule of the transfer with the Water Operations Division via the Engineer.

### **700-1.2.2.8 Disassembly of High-line System.**

- a) Disassembly. After restoration of normal service to water users, the City Forces will disconnect high-lining from all services and the Contractor shall breakdown and fully disassembles the high-line system and removes all high-line construction materials and debris from the area by the end of the Working Day. Street resurfacing shall be restored in accordance with 302-6, "Portland Cement Concrete Pavement" and City of San Diego Standard Drawings SDG-107, "Trench Resurfacing for Asphalt Concrete Surfaced Streets" and SDG-108, "Trench Resurfacing for PCC Surfaced Streets".
- b) Restoration of Streets and Other Facilities. The Contractor shall remove all high-line construction material and debris, and shall restore streets, curbs, gutters, sidewalks, fire hydrants, and other disturbed facilities in accordance with 7-9, "Protection and Restoration of Existing Improvements."
- c) High-Lining Materials. High-lining materials shall become the Contractor's property.

**700-1.2.2.9 Figures.** The Contractor shall refer to the following figures, if the figures are provided in the Contract Documents, for high-lining details:

- Fig. 1: Typical 2" Fire Hydrant Connection.
- Fig. 2: Typical Residential User Connection, 1-Inch Meter.
- Fig. 3: Typical Driveway Access Crossing.
- Fig. 4: Typical Curb Ramp Crossing.
- Fig. 5: Typical Curb Piping Run.
- Fig. 6: Typical 4" Fire Hydrant Connection.

**700-1.1.2.10 Payments.** The Bid items provided for high-lining Work shall include Work described in 700-1.1.2, "High-lining By the Contractor" broken down as follows:

- a) The linear foot price bid item, "Furnishing Hi-lining Materials" shall be full compensation for furnishing all materials necessary to install the high-lining system and connect water services.
- b) The unit price Bid item for "Hi-Lining Installation and Dismantling" shall be full compensation for installing the high-lining system complete and dismantling it after the restoration of normal service to water users. Restoration of the surface improvements shall be included in the payment for "Hi-Lining Installation and Dismantling".
- c) Payment to the Contractor for maintaining and repairing the high-lining system during construction shall be included in the lump sum Bid item for "Hi-Lining Maintenance and Repairs."

**700-1.3 Connections to the Existing System.** The responsibility for making connections and cut-ins to the existing mains as part of the base Bid is the City Forces'. If an Additive Alternate is awarded for this work it shall be the responsibility of the Contractor.

**700-1.3.1 Connection by the City Forces.** The Contractor shall provide the following information about the existing main prior to connections:

- a) condition of pipes and valves,



- b) type of fitting and joint to which connection is to be made (i.e., construction), and
- c) alignment, elevation, and location of the water main and any fittings.

**700-1.3.1.1 Connection by the City Forces When the City Forces Cut and Plug the Existing Main.** The City Forces will isolate existing water main to be replaced by the Contractor. The City forces will mark location, elevation, and approximate grade of existing main on street pavement and record this information for future use. The Contractor shall consult and cooperate with the City Forces' supervisor to ensure that the information is understood and used correctly. Within the last 10' to be installed by the Contractor, the Contractor shall install bends, concrete thrust blocks, short lengths of pipe, and other appurtenances necessary to put the new installation on line and grade with the existing pipe.

**700-1.3.1.2 Connection by the City Forces When the City Forces Do Not Cut and Plug the Existing Main.** The Contractor shall expose the existing water main where the Work ends. The Contractor shall be responsible for determining the elevations of existing water mains and fittings. The new water main shall be at the same grade and parallel alignment as the existing main and shall be no farther away than 1' from the existing water main. At the option of the Contractor, one or two bends or pulled joints may be used to accomplish this condition.

**700-1.3.1.3 Furnishing Materials.** If required in the Contract Documents, the Contractor shall furnish the necessary materials for the City Forces' connection and cut-in work as shown on the Plans to the City. The Contractor shall coordinate closely with the City Forces for the delivery of materials. The delivery location for furnished materials shall be determined by the City Forces. No materials shall be delivered to the City until the City Forces are ready to construct the work, unless otherwise specified, in writing, by the City.

**700-1.3.1.4 Pavement Restoration for the City Forces Final Connection.** Within 10 days following the completion of the City Forces final connection work in the Project areas, the Contractor shall remove all temporary resurfacing, saw cut trench area, compact sub-grade and restore affected area with permanent resurfacing in accordance with 302-6, "Portland Cement Concrete Pavement" and City of San Diego Standard Drawings SDG-107, "Trench Resurfacing for Asphalt Concrete Surfaced Streets" and SDG-108, "Trench Resurfacing for PCC Surfaced Streets".

**700-1.3.1.5 Payment.** The payment for the furnished material for the City Force connection and cut-in work shall cover materials (i.e., fittings, valves, and hardware) including delivery and unloading. The Contractor will be paid under the lump sum Bid item for "Contractor Furnished Materials for Connection and Cut-in Work."

Payment for preparatory work in advance of connections by the City Forces in accordance with 700-1.2.1, "High-lining by the City Forces" shall be included in the various Bid items. Traffic control, saw cutting the trench area, trench cap, and other spot repairs in the vicinity of disturbed area at each restored connection shall be included in the Bid item for Pavement Restoration for the City Forces Final Connection. Asphalt Overlay and Slurry Seal will be paid under separate Bid items.

**700-1.3.2 Connections to the Existing System by Contractor.** If required in the Contract Documents, the Contractor shall make the connection (e.g., cut-in or tie-in) to the existing mains as shown on the Plans, specified in these specifications, and in conformance with the latest standards of the State Department of Public Health. Suitable facilities shall be provided for proper de-watering, drainage, and disposal of all water removed from the excavation or pipe without damage to adjacent property. The Contractor shall locate and expose the existing water main to which connection is to be made prior to and in advance of trenching to permit grade and alignment changes as approved by the Engineer. The Contractor shall make the connections as shown on the Plans regardless of the condition or location of the existing pipe, valves, and fittings with no adjustment in the Contract Price.

**700-1.3.2.1 Submittals.** The Contractor shall submit shop and working drawings and other information in accordance with 2-5.3, "Submittals" prior to start of construction. The drawings and other descriptive material shall adequately describe procedures to be used, materials to be furnished, any related pipeline appurtenances, and trench shoring. Each drawing shall be reproducible original, accompanied by 6 copies of all submitted information. If approved without change or correction, two approved copies will be returned to the Contractor. The Contractor shall include all time impacts of protecting the existing water main in the Schedule.

The Contractor shall submit traffic control drawings and obtain Traffic Control Permit from the City prior to the start of the construction.

**700-1.3.2.2 Utility Verification for Connection location.** The Contractor shall call the USA and have the respective utility owners locate their facilities. The Contractor shall then pothole the location and depth of all utilities to verify that there are no utility conflicts prior to excavation.

The Contractor shall locate and confirm vertical and horizontal locations, size, shape, materials, and construction of existing water mains.

**700-1.3.2.3 Notification.** The Contractor shall coordinate the Work with the City Water Operations Division (for 16" and larger call Hydraulic Section at 619-668-2025), and notify them a minimum of 20 Working Days after Engineer's approval of the Contractor's work plan and prior to any shutdown of an existing water line. The City Forces will perform all shutdowns including trial and final attempts. If the Contractor fails to keep the field appointments, the City will bill the Contractor for scheduled the City Forces waiting or standby time and the costs incurred by the City for notification of its customers for the subsequent appointment.

The Contractor shall schedule the requested shutdowns during low demand times. Generally, only residential areas may be done during the day. The Contractor shall coordinate with the City to determine the appropriate times. The City may refuse to shutdown a water line on the day requested by the Contractor due to operational circumstances (i.e., business cannot withstand a shutdown of water at that time; other connecting distribution systems are out of service at the same time; high water demands by

customers; etc.) or other reasonable concerns by the City. No request will be denied for arbitrary reasons.

The City Council district and any property owner/tenants affected by a planned shutdown of an existing water line shall be notified in writing ten 10 Working Days in advance of the shutdown. The notice shall detail when and how long the shutdown will last. The Contractor shall prepare and distribute written notification within 24 hours prior to starting Work on any water main that will affect service. This notification shall be delivered door-to-door to water users in the affected area. A copy shall be delivered to the Engineer on the date of user notification.

**700-1.3.2.4 Connection.** Prior to connecting to existing water main, the Contractor shall have all personnel, material and equipment ready to connect the fittings to the existing mains to minimize the shutdown time. The City may postpone or reschedule any shutdown operation if for any reason the City determines that the Contractor is improperly prepared with competent personnel, equipment, or materials to proceed with the connection.

When installing a cut-in tee (or cross) with new valves, reducers or other fittings that is larger than the existing pipe, the new assembly shall be installed at the depth sufficient to allow the valve to remain below the subgrade of the street which may necessitate lowering the existing pipe. The Contractor shall provide and install the entire assembly (including valves and reducers) and any other hardware necessary under the City inspection in accordance with the City Standards. The entire assembly shall be connected in advance to facilitate the expedient connection to existing main.

After performing the Connection, the Contractor shall flush the connection to prevent any contamination of the existing facilities. The City Forces will take water samples for bacteriological tests in accordance with the latest edition of the AWWA C 651.

Shutdown of the water main and Connection operations shall be coordinated with high-lining operation; be performed at low demand times; and shall be completed within timeline noted in the Notification by the Contractor in accordance with 700-1.2.2.3, "Notification."

If Connection operation exceeds the time as identified in the notification, causes health and safety risks, or disruption of water service to the consumers, the Contractor shall notify the Engineer and the City's Station 38 at (619) 527-7660 for assistance to provide potable water and temporary high-lines to restore water to the affected consumers. The City will order necessary corrective measures. All costs for corrective measures shall be paid by the Contractor. The Contractor shall be liable to the City for the costs of the City Forces' emergency work.

After isolation of the mains, rarely does a completely dry condition exist in the trench. If existing valves leak excessively during the isolation of the segment that is going to be connected, the City Forces will assist in reducing the influx of water, but the Contractor shall use methods at the Contractor's disposal to work with the resulting leakage.

**700-1.3.2.5 Quality Control.** The Work shall not proceed if the City Water Department Operations Division employee familiar with the water system is not present during all Connection work.

The Contractor shall take every precaution necessary to prevent trench water, dirt or debris from entering the water mains during Connection operation.

Under no circumstances shall a non-disinfected water main, which cannot be isolated and has not passed bacteriological test, be connected to an existing disinfected water main.

**700-1.3.2.6 Operation of Valves.** Valves on the City's water system shall be cleaned and operated only by the City Forces.

**700-1.3.2.7 Repair.** If the water main is damaged by the Contractor's operations, the Contractor shall immediately notify the Engineer and the City Water Operations Division representative or the City's Station 38. The City Forces will perform all necessary repairs to the water main. The Contractor shall be liable to the City for the costs of the City Forces' repair work.

**700-1.3.2.8 Compaction.** Compaction of the trench after installation of the water main shall be in accordance with 306-1.3, "Backfill and Densification."

If the Work is located within a different jurisdiction/agency other than the City or private easement, compaction shall meet the requirements of that agency or utility granting the permit.

**700-1.3.2.9 Surface Restoration.** The Contractor shall restore to its original grade and condition surfaced areas in accordance with 7-9, "Protection and Restoration of Existing Improvements." After final connection is completed, the Contractor shall remove all temporary resurfacing, compact sub-grade and restore affected area with permanent resurfacing in accordance with 302-6, "Portland Cement Concrete Pavement" and City of San Diego Standard Drawings SDG-107, "Trench Resurfacing for Asphalt Concrete Surfaced Streets" and SDG-108, "Trench Resurfacing for PCC Surfaced Streets".

**700-1.3.2.10 Payment.** "Connection to The Existing System by the Contractor" e.g. cut-in or tie-in will be paid under Bid unit prices for connections, and cut-ins. Potholing for and protecting the water main while performing the Work, information essential for making the connection, coordination of Work with the City Forces, scheduling impacts, community outreach, materials and traffic control shall be included in the payment.

**700-1.4 Cut and Plug of the Existing System by the Contractor.** The cut and plugs of the existing system as part of the base Bid shall be performed by the City Forces. If an Additive Alternate is part of the Contract Documents and awarded for this item of Work, cut and plugs shall be the responsibility of the Contractor.

**700-1.4.1 Submittals.** The Contractor shall submit Shop Drawings and Working Drawings and other information for the cut and plug of existing water mains in accordance with 2-5.3, "Submittals." The submittals shall adequately describe procedures to be used e.g., distance from valves, thrust blocks for temporary plugs, materials to be furnished, any related

pipeline appurtenances, and trench shoring. Each drawing shall be reproducible original, accompanied by 6 copies of all submitted information. If approved without change or correction, 2 approved copies will be returned to the Contractor. The Contractor shall include in the Schedule all time impacts to protect the existing water mains.

The Contractor shall submit traffic control drawings and obtain the Traffic Control Permit from the City prior to the start of the cut and plug and reconnection operations.

**700-1.4.2 Utility Verification for Cut & Plug location.** The Contractor shall contact the Underground Service Alert (USA) and have the respective utility owners locate their facilities. The Contractor shall then pothole the location and depth of all utilities to verify that there are no utility conflicts prior to excavation.

The Contractor shall locate and confirm vertical and horizontal locations, size, shape, materials, and construction of existing water mains.

**700-1.4.3 Notification.** The Contractor shall coordinate the Work with the City Water Operations Division (for 16" and larger call Hydraulic Section at 619-668-2025), and notify them a minimum of 20 Working Days after Engineer's approval and prior to any shutdown of an existing water line. The City Forces will perform all shutdowns. If the Contractor fails to keep the field appointments, the City will bill the Contractor for scheduled the City Forces waiting or standby time and the costs incurred by the City for notification of its customers for the subsequent appointment.

The Contractor shall make every effort to schedule the requested shutdowns during low demand times. Generally, only residential areas may be done during the day. The Contractor shall coordinate with the City to determine the appropriate times. The City may refuse to shutdown a water line on the day requested by the Contractor due to operational circumstances (i.e., business cannot withstand a shutdown of water at that time; other connecting distribution systems are out of service at the same time; high water demands by customers; etc.) or other reasonable concerns by the City. No request will be denied for arbitrary reasons.

The City will prepare and distribute written notification within 24 hours prior to starting Work on any water main that will affect service. This notification shall be delivered door-to-door to water users in the affected area. A copy shall be delivered to the Engineer on the date of user notification.

**700-1.4.4 Cut and Plug.** Prior to cutting and plugging of the existing water mains, the Contractor shall have all personnel, material and equipment ready to minimize the shutdown time. The Contractor shall organize its workforce, equipment and operations to protect the existing water main while performing the Work.

Shutdown of water main and cut and plug operations shall be coordinated with high-lining operation and shall be performed during low demand times and shall be completed within the timeline noted in the Notification by the Contractor in accordance with 700-1.3.3, "Notification."

After isolation of the mains, rarely does a completely dry condition exist in the trench. If the existing valves leak excessively once closed during the isolation of the segment that is going to be plugged, the City Forces will assist in reducing the influx of water if needed, however, the Contractor shall use methods at Contractor's disposal to work with the resulting leakage.

If the cut and plug operation exceeds the time as identified in the notification or causes health and safety issues or disruption of water service to the consumers, the Contractor shall notify the Engineer and the City's Station 38 at (619) 527-7660 for assistance. The City will provide potable water and or temporary high-lining to restore water to the affected consumers. The City will order necessary corrective measures.

All costs for corrective measures shall be paid by the Contractor. The Contractor shall be liable to the City for the costs of the City Forces' emergency work.

**700-1.4.5 Quality Control.** Cut and plug of existing water lines shall be completed in a safe, neat and orderly manner. Plugs shall be capable of blocking pressurized main with no visual leak detected. The Contractor shall take every precaution necessary to prevent trench water, dirt or debris from entering the water mains during the capping/plugging operation.

Cut and plug shall not proceed if the City Water Department, Operations Division employee familiar with the water system is not present for the duration of the cut and plug.

After the cut and plug operation, the water main and appurtenances shall be disinfected and field tested by the Contractor in accordance with the latest edition of AWWA C 651. The City Forces shall take water samples for bacteriological tests in accordance with Section 7 of the AWWA C 651.

Suitable facilities shall be provided for proper de-watering, drainage, and disposal of all water removed from the excavation or pipe without damage to adjacent property.

**700-1.4.6 Operation of Valves.** Valves on the City's water system shall be cleaned and operated only by the City Forces.

**700-1.4.7 Repair.** If the water system is damaged by the Contractor's operations, the Contractor shall immediately notify the Engineer and the City's Station 38 or the City Water Operations Division representative. The City Forces will perform all necessary repairs to the water main. The Contractor shall be liable to the City for the City Forces' work for the repair.

**700-1.4.8 Surfaced Areas Impacted by Cut & Plug.** Surfaces impacted by excavation to install cut and plug shall be temporarily backfilled, resurfaced, and maintained.

**700-1.4.9 Payment.** Potholing for and protecting the water main, coordination of Work with the City Forces, any scheduling impacts, community outreach, materials, and traffic control shall be included in the unit price payment for "Cut and Plug of The Existing System by the Contractor".

## ADD: PART 8

### ENVIRONMENTAL WORKS

#### SECTION 800 – EXTENDED REVEGETATION, MAINTENANCE, AND MONITORING

**800-1 GENERAL.** Contractor shall execute and submit the revegetation supplemental agreement, when included in the Contract Documents. The provisions of Section 2-3, “SUBCONTRACTS” shall not apply to the independent supplemental agreement. The Contractor shall limit staging areas to described areas as identified in the Biological Technical report included in the Contract Documents.

**800-1.1 Definitions.** For the purpose of these specifications the following definitions shall apply:

**CEQA Document** – The Document prepared for the Project for CEQA and attached in the Contract Documents where applicable. Mitigation Monitoring and Reporting Requirements for environmental mitigation and resource protection including revegetation may be included therein. The Document type that is attached will be a (Mitigated) Negative Declaration or Environmental Impact Report or CEQA Exemption form (if The Project is exempt from CEQA review).

**Revegetation Plan** - Report prepared commissioned by the City and included in these specifications containing important details on procedures, materials, and methods applicable to protection of biological resources, revegetation, and maintenance and monitoring of installed vegetation.

**Project Biologist** - Employed by the Contractor and responsible for overseeing the Protection of Existing Biological Resources requirements and the entire revegetation program. Project Biologist functions under the direction of the Engineer. The Project Biologist shall be an individual or team of individuals with 4-year degree(s) in botany, ecology, landscape architecture, or a related field, and demonstrated experience in upland and wetland habitat restoration and shall be qualified to perform United States Fish and Wildlife Service protocol focused sensitive species surveys as outlined in the biological technical report, CEQA document, local, state and federal resource agency permits or a combination for the Project.

**Revegetation Contractor** - The planting and plant establishment work shall be performed by a qualified Revegetation Contractor to implement the proposed revegetation plan. This Revegetation Contractor shall possess a landscape Contractor’s and herbicide license and show references for at least 3 successful native habitat revegetation projects in Southern California. The Revegetation Contractor shall demonstrate knowledge of native vegetation and invasive weed identification as a part of the bid proposal. The Revegetation Contractor shall be willing to implement this revegetation plan in accordance with its specifications and in accordance with recommendations provided by the Project Biologist and City.



**Maintenance Contractor** - The Maintenance Contractor may be the same as the Revegetation Contractor, or a subconsultant, and will be responsible for maintenance of the revegetation and erosion control areas for a minimum of the 120-day plant establishment period. The Maintenance Contractor shall be familiar with the identification of native species associated with upland and wetland vegetation communities and non-native invasive plants. The Maintenance Contractor shall be responsible for training all personnel working in the revegetation sites. Maintenance staff shall be familiarized with revegetation site boundaries, the requirements of the revegetation effort as it pertains to them, and any other information that the Project Biologist determines is necessary for the success of the revegetation program (such as protection of existing adjacent upland and wetland areas).

**Plant Supplier** - May be the Project Biologist or a qualified native plant nursery. The plant supplier shall have at least two years experience in propagate native plants and will be responsible for prorogating all containerized plant materials according to these specifications.

**Seed Supplier** - May be the Project Biologist or Plant Supplier and shall have at least two years experience collecting coastal sage scrub and riparian seeds for restoration projects. The seed supplier shall hold a valid Department of Agriculture Inspection Certificate. The Seed Supplier is responsible for collecting necessary quantities of specified plant species for use in the revegetation phase of the Project.

**MHPA** - Acronym referring to the Multiple Habitat Planning Area administered by the City of San Diego's Multiple Species Conservation Program (MSCP). The MHPA is a system of environmentally sensitive areas given special protections. Work conducted within the MHPA typically requires monitoring by the Project Biologist and may require additional special studies or impact avoidance measures. If such monitoring, studies, and/or avoidance measures are necessary, they will be outlined in the attached CEQA Document, Site Development Permit (if applicable), and these specifications.

**Plant Establishment Period (PEP)** - Period of time required to ensure successful initial establishment of revegetation materials installed as directed in the specifications and drawings. The PEP begins upon acceptance of installation of all revegetation and extends for a minimum period of 120 days. The PEP can be extended under specific circumstances as described elsewhere in these specifications.

**Revegetation Maintenance and Monitoring Period** - Period of time required to ensure long-term establishment and health of revegetation. Maintenance and Monitoring begins upon completion and acceptance of the Plant Establishment Period and extends for the duration specified in the Special Provisions. It can be extended if the revegetation does not meet specific performance criteria in accordance with the Revegetation Plan.

**800-1.2 Environmental Protection.** Before the commencement of any clearing, grubbing, or excavations in unpaved areas, including but not limited to Environmentally Sensitive Lands as defined in City Municipal Code 143.01, canyons and other vegetated areas, all responsible parties of the Contractor will meet at the Site with the Engineer and the Project Biologist. The Project Biologist will review all requirements of the plans and specification

which concern said responsible parties including Site protection, inspections, landscape procedure, plans, specifications and performance requirements. The Contractor shall ensure prior to any activity at the Site that all laborers are aware of the limits of construction areas.

**800-1.3 Protection of Biological Resources.** The Contractor shall protect existing landscape, existing native vegetation, and other biological resources within the limits of Work, except as specifically authorized to the contrary by the plans, the CEQA Document, the attached local, state, and federal resource agency permits, or other written notice from a person or agency possessing proper authority to grant such an exception.

The Contractor may remove or damage existing vegetation (native or ornamental) only within the "Construction Corridors" identified in the Plans. The Project Biologist will approve and locate (flagging) the "Construction Corridors" in the field. If the Contractor damages areas outside the identified "Construction Corridor", the Contractor shall mitigate, in accordance with the direction of the Project Biologist and Engineer, the areas at the Contractor's own costs. It is the intent of these contract documents that all ornamental landscape and existing native vegetation outside the limits of the work area be fully and completely protected. The Contractor shall restrict all construction activities to within the said corridor, so as not to impact sensitive resource areas outside of the corridor.

Additional vegetation protection, scheduling, noise abatement, and/or wildlife survey requirements may be imposed by CEQA Document or by local, state, and federal permits. The Project Biologist will flag or otherwise make known such areas and/or requirements and will further coordinate work to comply with these requirements. It is the Contractor's responsibility to comply with all biological resource protection requirements. Any damages to biological resources given specific protection by these specifications, the drawings, the CEQA Document, or by local, state, and federal permits shall be mitigated in accordance with the direction of the Project Biologist and Engineer at the Contractor's own costs and be submitted for approval by any local, state, or federal agency permitting authority associated with those impacts.

**800-1.4 Construction Fencing.** The Contractor shall furnish and install orange construction fencing at all locations along the construction corridors.

The Contractor is responsible to schedule with Engineer and Project Biologist the flagging of the construction corridor prior to any clearing and grubbing activity. After approved corridor alignment, Contractor shall install construction fence to be maintained until the end of the 120-day Plant Establishment Period.

Construction fencing shall be staked at no less than 10' on center with metal fence stakes. At each stake, the material shall be fastened with a minimum two nylon ties.

**800-1.5 Responsibilities and Restrictions for the Contractor While Working in Unpaved Areas.** Construction personnel shall be instructed about the sensitive nature of the native vegetation and constraints within the vegetated areas identified on the plans. Construction-related activity outside of the public right-of-way of local roads including but not limited to equipment travel and access, clearing, grubbing, grading, excavation, stockpiling of

excavated material and storage of materials, and equipment and vehicles shall be limited exclusively to the construction corridor area identified on the Plans and shown or described in attached environmental documents and permits.

The following restriction shall apply to all construction areas located within vegetated areas:

- a) No construction personnel or associated vehicles shall enter vegetated areas that are outside the "Construction Corridor" as identified on the plans and as defined by the Project Biologist and the Engineer.
- b) Pets are prohibited on construction site(s) and within adjacent habitat areas.
- c) Catering trucks are prohibited on the construction site(s).
- d) For concrete washouts refer to water pollution control sections of these specifications.
- e) Litter, including tobacco debris, is prohibited on the construction site(s), either from construction or food packaging.
- f) Equipment maintenance and pollution control shall be in accordance with 7-8, "WORK SITE MIANTENANCE."
- g) Access to the construction site(s) shall be via the Construction Corridor.
- h) To reduce the possibility of fire, NO SMOKING shall be allowed within vegetated areas.
- i) Additional restrictions may be listed in the attached CEQA Document, local state or federal permits, or a combination.

**800-1.6 Construction Access Routes.** Vehicle and equipment traffic shall enter into the canyons or other unpaved areas only through the routes identified as "Construction Corridor" on the Plans. Within the "Construction Corridor" surface vegetation can be removed only as necessary to provide safe passage for foot and vehicle traffic. Care shall be taken to minimize impacts to existing vegetation to the extent possible. Where possible, vegetation shall be trimmed, pruned or mowed rather than cleared and grubbed. All impacted areas shall be revegetated according to the Contract Documents. The Contractor is advised to investigate Site conditions before bidding the Project.

**800-1.7 Biological Monitoring.** This work shall include all the required biological monitoring and reporting of the revegetation and erosion control from project start through acceptance of the Plant Establishment Period, in accordance with these special provisions, as shown on the plans, as directed by the CEQA Document and other acquired local, state, and federal permits, and the direction of the City's Environmental Analysis Section (EAS) via the Engineer.

**800-1.7.1 General.** The Contractor shall retain a qualified Project Biologist. Verification documentation shall be provided and approved by the Environmental Review Manager of LDR at least 30 days prior to the preconstruction meeting. If the proposed Project Biologist is

not approved by EAS, the Contractor shall submit an alternate qualified Project Biologist at no additional cost to the City prior to start of Work.

Once approved, the Project Biologist shall attend the pre-construction meeting to present and coordinate the revegetation portion of the Project.

**800-1.7.2 Monitoring.** The Project Biologist shall observe and monitor all construction activities in or near vegetated areas or other areas designated or regulated as sensitive biological resources by City, State, and federal regulations and/or described as such by the attached Biological Technical Report provided in the Contract Documents. During the construction work in the sensitive areas, the Project Biologist shall be present on Site no less than two days per week to insure fulfillment of all of the monitoring requirements referenced in these specifications and its attachments. The Project Biologist shall be on-site at the start of all excavation and clearing and grubbing activities.

The Project Biologist shall be responsible for monitoring all construction activities in unpaved areas for compliance with these contract documents and its attachments. The Project Biologist shall report directly to the Engineer any Site conditions, work activity, or work product that does not comply with the Contract Documents or its attachments.

The Project Biologist shall have authority and responsibility, via the Engineer, to immediately stop work in areas of the Project where an unpermitted take of existing biological resources would result from continued construction activity.

Project Biologist shall be the sole authority for interpreting, via the Engineer, the intent of the attached Biological Technical Report, Revegetation Plan, CEQA Document, Site Development Permit, or both and resource agency permits, and these specifications and shall provide specific information and direction to the Engineer and the Contractor as shown in the Contract Documents.

The Project Biologist shall attend and perform the Site observation visits in accordance with these specifications.

**800-1.7.3 Reporting.** The Project Biologist shall prepare letter reports to document the completion of plant and seed installation and the Plant Establishment Period. The letter reports shall include review of the clearing, grubbing, and installation activities as well as the success standards at the end of the Plant Establishment Period and any remedial measures required. Any additional reporting requirements contained in the CEQA Document, Site Development Permit, or both and the Revegetation Plan shall be followed.

**800-1.8 Landscape Materials.** ADD the following:

**800-1.8.1 General.** Revegetation Materials shall conform to Section 212, "Landscape and Irrigation Materials" and these specifications.

**800-1.8.2 Topsoil.** The on-site soils (Class C) are suitable and preferred for reuse as topsoil if free from excessive vegetation, trash and debris, and other deleterious matter. The Project Biologist shall be responsible for determining suitability of on-site topsoil material.

If import of topsoil is determined to be necessary, Class B topsoil from a comparable site shall be provided and tested, as specified. Topsoil source and quality shall be approved by the Project Biologist prior to delivery. Topsoil shall be weed free upon delivery, or treated as specified for weed eradication. If topsoil is to be stored on-site for later installation, it shall not be stored for more than one week.

**800-1.8.3 Soil Fertilizing and Conditioning Materials.** No fertilizers shall be used for any aspects of planting and seeding. The Project Biologist may change this specification based on observed or tested soil conditions. If necessary, fertilizers shall be in accordance with these specifications.

**800-1.8.4 Commercial Fertilizer.** Commercial fertilizer shall be a 21-gram, slow-release fertilizer tablet, Agriform, or approved equal.

**800-1.8.5 Mulch.** Mulch shall be created from on-site vegetation as approved by the Project Biologist. If additional mulch is required, straw mulch shall be derived from rice plant material; stable bedding straw shall not be used. Straw shall be un-decayed, clean and free of weeds, seeds and debris.

**800-1.8.6 Seed.** The Contractor shall arrange for seed material to be especially collected for the sole purpose of the Project in accordance with these specifications, the CEQA Document, Site Development Permit, or both and the Revegetation Plan. Contractor shall submit copies of seed collection contract agreement, within 30 days of contract award, to the Engineer and Project Biologist for approval.

Seed shall be collected from the Project vicinity (e.g., within a 10-mile radius) to the extent practical. If not enough local seed can be collected to meet the Project requirements, seed shall be ordered and delivered separated and containerized by species. Seed mixes shall conform to the provisions in these specifications and the Revegetation Plan.

Contractor shall furnish seed according to specifications in the attached Revegetation Plan. Application rate (lbs./acre) for seed types not conforming to specified percentage of seed purity and germination will be adjusted by Project Biologist using current test results. Increased seed quantities shall be furnished by Contractor at Contractor's cost.

Seed used for lawn, erosion control, or other planting specified on the Plans or listed in the Specifications or Revegetation Plan, shall be furnished in labeled and sealed standard containers, with duplicate signed copies of a statement from the Supplier, certifying that each container of seed delivered is fully labeled in accordance with the California State Agricultural Code, stating seed species (by genus and species scientific name), quantity (weight), supplier name, geographic location and date seed was collected and tested, and certified analysis including percent purity and germination. Prior to installation, the Contractor shall submit all seed bag certification tags and signed inspection certificates, required by law, to the Engineer through the Project Biologist without charge. The Engineer and Project Biologist will reject materials lacking certification tags or not conforming to specifications. Seed that has become wet, moldy or otherwise damaged in transit or storage will not be accepted.

The Contractor shall be responsible for providing seed that has been pre-treated by known methods for each species of plant seed as defined in Emery, Dara E. 1988, Seed Propagation of Native California Plants, Santa Barbara Botanic Garden, Santa Barbara California.

**800-1.8.7 Samples.** The Engineer and Project Biologist reserve the right to request and analyze samples of material for conformity to specifications at any time. The Contractor shall furnish seed samples upon request. Samples of one half pound of each species or premixed seed mix may be requested by the Project Biologist or the Engineer, to be drawn at time of delivery to mitigation site.

**800-1.8.8 Substitutions and Changes.** Contractor shall submit to the Engineer and the Project Biologist any proposed substitutions or other changes to the specified seed mixes or container plant lists. Submittal shall be made at the earliest possible opportunity and at least 30 days prior to installation.

**800-1.8.9 Plant Inspection.** The Revegetation Contractor shall notify the Engineer and the Project Biologist 48 hours before each plant delivery so the plants can be inspected and approved prior to planting.

- a) Nomenclature: The scientific and common names of plants herein specified conform to the approved names given in "A Checklist of Woody Ornamental Plants in California, Oregon, and Washington" published by the University of California, Division of Agriculture Sciences, Publication 4091 (1979). (See list of plant materials on drawings).
- b) Labeling: Each group of plant materials delivered on-site shall be labeled clearly as to species and variety. Patented plants (cultivars) required by the plant list shall be delivered with a property plant patent attached.
- c) Quality and Size: Plants shall be in accordance with the State Department of Agriculture regulations for nursery inspections, rules and grading. Sizes shall conform to the dimensions indicated on the planting plan.

The Project Biologist and the Engineer are the only judges as to acceptability of each plant. Vigorous, healthy, well-proportioned plants are the intent of this specification. Plants which are even moderately "overgrown," or are showing signs of root girdling, decline, lack of vigor or stunted growth, are subject to rejection. The size of the plants will correspond with that specified in the drawings. Plants larger in size than specified may be used with the approval of the Engineer and the Project Biologist, but the use of larger plants shall not cause any change in Contract Price. If the use of larger plants is approved, the ball of earth and spread of roots for each plant shall be increased proportionately.

- d) Rejection: Plants not conforming to the requirements herein specified, shall be considered defective, and such plants, whether in place or not, shall be marked as rejected and immediately removed from the Site and replaced with new plants by the Contractor, at the Contractor's expense.

The plant materials shall meet all applicable inspections required by law. Plants shall be of the species, variety, size, age, flower color and condition as specified herein and/or as indicated on the Drawings. Under no condition will there be any substitution of plant species, variety, or reduced sizes for those listed on the accompanying Drawings, except with the expressed written consent of the Project Biologist and the Engineer.

- e) Right to Changes: Only the Engineer or Project Biologist may change the species, variety or sizes of plant material to be furnished, provided that the cost of such plant changes does not exceed the cost of plants in the original bid, and with the provision that the Contractor shall be notified, in writing, at least thirty (30) days before the planting operation has commenced.

The Contractor shall secure all plant materials in advance of the expected planting date. No substitutions of any species, sizes or quantities shall be allowed without approval of the Engineer and the Project Biologist. If the Revegetation Contractor is unable to obtain the specified plant species, sizes, and quantities at the time of planting, the 120-day plant establishment period shall not begin until all plants have been installed.

**800-1.8.10 Erosion Control Matting.** Erosion control matting shall be BonnTerra America, Coconut Straw Blanket #CS2, (70% straw, 30% coconut fiber), or approved equal. Matting shall be anchored in accordance with manufacture recommendations.

**800-1.8.11 Herbicides and Pesticides.** Post-emergent herbicide for all areas shall be Rodeo7 Round-Up, or approved equal. All other herbicides, insecticides, fungicides or other similar chemicals shall be approved by the Project Biologist prior to use.

**800-1.8.12 Miscellaneous Materials.** Materials not specifically described but required for a complete and proper installation shall be as selected by the Contractor subject to written approval of the Engineer via Project Biologist.

**800-1.9 Clearing and Grubbing.** Prior to the removal of any vegetation, the Project Biologist shall verify that proper limits of the “construction corridors” identified on the Plans have been established in accordance with these specifications.

**800-1.9.1 General.** Clearing and grubbing shall include the removal of existing vegetation by various methods, selected by the Contractor and approved by the Engineer and Project Biologist, such as weeding and cutting. Clearing and grubbing shall be coordinated closely with the Project Biologist and shall conform to these specifications.

Trash, and other objectionable material, shall be included in the clearing and grubbing. Clearing and grubbing shall include or be coordinated with the following items as shown on the Plans or specified in these specifications.

- a) Protection of environmental and built features to remain.
- b) Furnishing and applying water.



- c) Dust control.
- d) Erosion control.
- e) Maintenance of project appearance.

Clearing and grubbing can only be done at the locations identified as “Construction Corridor” of the Plans and as field verified by the Project Biologist prior to any clearing. Removal of vegetation shall not occur without the Project Biologist on-site. The Project Biologist shall monitor all site clearing activities. NO plant material existing outside of the Construction Corridor shall be damaged or removed. Other areas outside of the Construction Corridor shall be protected. Any disturbance in these areas (outside of the construction corridor) shall be repaired by the Contractor, to the satisfaction of the biologist and the resident engineer, at no additional cost to the City.

**800-1.9.2 Removal and Disposal of Railroad Tracks Within the Trench Zone.** In any location where abandoned railroad tracks or appurtenances are found to exist within the excavation, the railroad facilities shall be removed by the Contractor and properly disposed of. The removal shall include rails, ties, and any other associated facilities found within the excavation. Where the rail line lies only partially within the trench area, the entire width of the track shall be removed, including the entire length of each affected tie and both rails.

**800-1.9.3 Salvage Existing Topsoil and Vegetation.** The existing vegetation that will be removed during clearing and grubbing of the Site shall be retained on Site and ground to a coarse grade of mulch for re-application in accordance with this section. Prior to any excavation/digging that may occur, vegetation shall be removed and the top 8 inches of topsoil shall be removed and stored. Any existing native and approved non-native habitat vegetation removed during clearing and grubbing at the Site shall be retained on Site and ground to a coarse grade of mulch for re-application of top soil placement. The mulched vegetation is to provide native plant seeds and beneficial organic matter. Cleared and grubbed vegetation from areas of the Project classified as Ruderal or otherwise dominated by invasive exotic weed species, as determined by the Project Biologist, shall not be included in the mulch and shall be properly disposed of.

**800-1.9.4 Storage of Existing Topsoil and Vegetation.** The salvaged topsoil and mulch shall be stored at a location on Site that is approved by the Engineer or Project Biologist. The mulch shall be stored separately from the topsoil. The top soil and the mulch should be protected and covered by means of an impermeable tarp, etc. that will not allow the materials to erode and be exposed to the invasion of weed seed.

Creation of brush piles from cut and/or brushed vegetation that may become a fire hazard shall be avoided. All vegetation not to be salvaged in accordance with this section shall be chipped and/or cut to pieces of 12” or less, then removed, buried, or adequately spread out, so that no piles exist during or after construction.

### **800-2 LICENSED REVEGETATION CONTRACTOR.**

**800-2.1 General.** When required in the Contract Documents a licensed Revegetation Contractor shall be retained to perform landscape and revegetation work. The Contractor shall submit prior to pre-construction meeting copies of the Revegetation Contractor's landscape contractor license and herbicide license and show references for at least three (3) successful native habitat revegetation projects in Southern California. This submittal shall demonstrate the Revegetation Contractor's knowledge of native vegetation and invasive weeds.

**800-2.2 Site Observation Visits for Revegetation.** Observations by the Engineer and Project Biologist shall be for the purpose of determining compliance with plans and specifications, intent, workmanship, and clean-up. The Contractor or its authorized representative shall be on Site at the time of each site observation. Observations, clearances, inspections or other activities required or necessary for protection of environmental resources are separate from this work and are described in Part 1, the CEQA Document, and acquired local, state, and federal permits.

The Contractor shall receive written notification of all deficiencies and shall correct all deficiencies prior to requesting the next inspection. Each deficiency shall be resolved by the Contractor no later than 72 hours after oral and/or written notification from the Engineer. Failure to comply in the time frame defined herein will result in suspension of contract payment and/or a stop work order until such time that the deficiency is resolved and approved by Engineer and Project Biologist.

In addition to normal progress inspections, the Contractor shall schedule and conduct the following formal inspections, giving notice to Engineer and Project Biologist a minimum of 7 days prior to readiness to conduct the following Site observations:

- a) Site observation of all revegetation Site areas after clearing and grubbing and prior to any excavation or plant material installations.
- b) Site observations before any excavation operations are begun.
- c) Site observations immediately prior to seed application, planting, or both.

Site observation of the work shall not relieve the Contractor of the obligation to fulfill all conditions of the contract. Other observations, clearances, and monitoring activities are required in subsequent sections.

Upon completion of seeding and erosion control installations in vegetated areas, a punch list will be prepared by Project Biologist documenting any outstanding items to be completed or corrected. Contractor shall complete the punch list items within 10 days. Delay of completion of punch list items will delay the beginning of the 120-day Plant Establishment Period. Acceptance and written approval by the Engineer will establish the beginning of the Plant Establishment Period.

**800-2.3 Earthwork and Topsoil Placement.** For the purpose of this part, ADD the following to 308-2.1, "General:"

Finished soils in the upper three feet of all excavated areas in the vegetated area shall be predominately free of clay and sand. The Contractor shall not use subsurface soils from the deepest parts of the excavation unless specifically approved by the Engineer and Project Biologist.

Contractor shall perform minor ground contouring (grading) at the direction of the Engineer in accordance with the Project Biologist's recommendations, and in accordance with the plans and specifications to establish the proper topography essential to the revegetation effort.

**800-2.3.1 Topsoil Preparation and Conditioning Procedures.** The salvaged topsoil shall be reapplied to the disturbed areas prior to planting and seeding. The topsoil shall be free of rocks and all clods of greater than 1-inch. Contractor shall match existing elevations of adjacent untouched native soils and shall provide natural drainage to the maximum extent possible. Compaction within revegetation areas will not exceed 75% standard proctor within the top 8" of soil. Compaction testing will be required, if deemed necessary by Engineer and Project Biologist, to verify specifications have been achieved. Overly compacted soils shall be de-compacted by ripping or tilling as directed by the Project Biologist.

**800-2.3.4 Soils Testing.** Soils in areas to be revegetated, including sub-soils and existing topsoil, shall be tested for soil fertility and agricultural suitability if directed by the Project Biologist.

The Contractor shall collect 1 composite soil sample from the specified revegetation area. Sample location shall be approved by resident Engineer and Project Biologist.

Tests shall be conducted and evaluated by a qualified soils scientist from an approved soils laboratory such as Wallace Laboratories, El Segundo, CA; Agriservice, Vista, CA; Soil and Planting Laboratory, Santa Ana, CA; or a laboratory approved by Project Biologist and Engineer.

Soil analysis shall include, at a minimum, measures of salinity (ppt), soil ph, soil percolation, sodium absorption ratio (SAR), and all water-soluble nutrients. In evaluating soil samples, Soil Scientist shall account for seasonal variation and shall make recommendations regarding soil amendments based upon the vegetation to be established in each area.

The Project Biologist shall evaluate the soils lab recommendations to determine if additional soil preparation requirements will be necessary prior to seeding.

The cost of soil testing shall be included in the Revegetation Period lump sum bid item.

**800-2.3.5 Amending Site Soils.** If soils analysis indicates soil amendments are necessary, specified amendment materials shall be evenly spread over designated planting areas and shall be thoroughly incorporated to a uniform soil depth of 6" by rototilling a minimum of 2 passes, the second pass perpendicular to the first pass. Soil amendment application rates shall be determined by Project Biologist and Soil Scientist following analysis. Soil amendments shall be provided at Owner's expense.

**800-2.3.6 Weed Eradication.** The eradication of exotic plant species is required prior to any revegetation efforts. Exotic vegetation within the revegetation areas shall be removed. Herbicide shall be applied to weedy vegetation (e.g., giant reed (*Arundo donax*), tamarisk (*Tamarix* sp.), pampas grass (*Cortaderia jubata*), tree tobacco (*Nicotina glauca*), yellow star-thistle (*Centaurea melitensis*), cocklebur (*Xanthium* sp.), castor bean (*Ricinus communis*), annual beardgrass, and Bermuda grass (*Cynodon dactylon*), etc.) within the Site. All weedy species should be cleared approximately two weeks following herbicide application.

The Project Biologist shall be requested to review the weed species with the Revegetation Contractor prior to start of weeding. Desirable native plants shall not be removed. The Contractor shall verify weeds to be removed with Project Biologist prior to proceeding.

The Project Biologist shall inspect the revegetation site prior to planting and during revegetation.

Soil preparation and planting shall not be allowed until weeds are removed from within the construction corridor indicated on the plans and no later than 30 days after construction is complete. Relatively few and young/small weed species may be expected to establish prior to revegetation installation. As a result, most or all of these species should be removed by hand. Any appropriate volunteer species, as determined by the Project Biologist, may be left in-place to supplement the revegetation.

Manual weed eradication shall continue during planting and during the 120-day plant establishment period. Manual weed eradication shall consist of hand pulling (including the root system) of weeds, while leaving native and other desirable plants in place. If temperature and weather conditions permit, solarization shall be used to eradicate weeds and their seeds by applying white or black plastic sheeting over the weedy areas for approximately two to three weeks, as directed by the Project Biologist. Weed seedlings and sprouts shall be removed before attaining 12" in height and/or before producing seed.

No herbicides shall be used following the initial weed eradication unless authorized by the Project Biologist. Herbicides will be limited to use on only the most noxious species such as fennel, poison hemlock, bermuda grass, tamarisk, tree tobacco, pampas grass and giant reed and used only under the direct supervision of the Project Biologist and the guidance in these specifications. The herbicide shall be applied immediately after cutting of stems or branches. The Project Biologist shall monitor exotic species eradication.

All areas where weed removal creates bare areas in excess of 25 ft<sup>2</sup> shall be reseeded.

The Contractor's labor shall possess demonstrated ability to identify the difference between desirable native species and invasive weeds.

Pulled weeds and debris shall be transported and disposed of properly off-site immediately to prevent any seed dispersal on the Site.

**800-2.4 Finish Grading.** For the purpose of this part, ADD the following to 308-2.4, "Finish Grading:"

Pre-existing grades and natural drainage courses shall be reestablished to their original grade and contour, in accordance with the direction of the Engineer and Project Biologist.

Final grading shall be acceptable to Engineer before planting operations will be allowed to commence.

The topsoil preparation and conditioning and preparation of the final grade shall be included in the lump sum bid item for Revegetation and Erosion Control.

**800-2.5 Planting.** For the purpose of this part, DELETE the first sentence in 308-4.1, "General" in its entirety and SUBSTITUTE the following:

The Contractor shall replant unpaved portions of the pipeline alignment that are disturbed by the construction activity. The Contractor shall use only the types, sizes, and quantities of plant materials required by the plans and specifications, any permit conditions, and Section 7 of the City of San Diego's Landscape Technical Manual. The Contractor shall use quantities that will meet revegetation success criteria at the end of the 120-Day Plant Establishment Period (PEP) in accordance with 308-6, "MAINTENANCE AND PLANT ESTABLISHMENT" and at the end of the Maintenance and Monitoring Program described in this part including any replacement of plant materials, which, in the City's sole discretion, did not successfully survive the plant establishment period.

Planting and seeding shall be performed after October 15 or before February 1 of any given calendar year. Seed installation outside of this time frame, if unavoidable and approved by the Project Biologist. Phasing of the installation will be acceptable based upon the progress of the construction, as approved by the Engineer and the Project Biologist. Specific planting times shall be limited to those periods when weather and soil conditions are suitable in accordance with locally accepted ecological, horticultural practice, or both as approved by the Engineer and the Project Biologist. Hand seeding and hydro seeding shall be conducted when wind and temperature are normal for the season in which the work is done. In cases of unseasonable weather, work shall be delayed until weather returns to normal.

Planting and seeding shall commence no later than 30 days after construction. If construction in areas to be revegetated shall be temporarily stopped to avoid the sensitive bird breeding season or for any other environmental reason, the revegetation work may be postponed until after work is allowed to begin again.

The Contractor shall be responsible for managing the Site and performing planting, maintenance and corrective measures to the best advantage of the plant material to promote healthy growth, establishment and success of the plantings. This shall include providing for drainage, irrigation, repair of damaged features, correction of deleterious conditions, maintaining a proper soil moisture level, weeding, fertilization, protection, temporary measures to promote establishment and other reasonable maintenance and construction efforts needed to provide for the successful establishment of the plant materials during the entire contract period.

The layout of locations for plants and outlines of areas to be seeded shall be approved on the Site by the Engineer and the Project Biologist. Container plant material and container

plants shall be set by the Contractor in their final locations and approved by the Project Biologist prior to their planting. All such locations shall be checked by the Contractor for possible interference with existing underground piping, prior to excavation of holes.

No area shall be seeded where weeds are present or there is evidence that a weed seed may still be present. Weeds present shall be removed prior to seeding in accordance with these specifications.

Unpaved areas disturbed by construction shall be revegetated according to these specifications, and the Revegetation Plan and other pertinent information provided in the Contract Documents.

The successful establishment of the plantings during the entire contract period is the Contractor's responsibility.

**800-2.6 Erosion Control Planting.** For the purpose of this part, DELETE 308-4.91, "General" in its entirety and SUBSTITUTE the following:

Erosion control planting shall be for slope protection and prevention of eroded sediments. Habitat restoration planting shall be for mitigation of habitats impacted by construction and shall attempt to create naturally appearing and functioning plant communities.

**800-2.7 Seeding and Mulching.** For the purpose of this part ADD the following to 308-4.9.3, "Seeding and Mulching":

Seeding shall be performed in accordance with 308-4.8, "Lawn Planting" and as follows.

Seeding is to be performed prior to application of any natural fiber matting, rice straw, etc. so that seed is in direct contact with the soil.

If seed application occurs outside the rainy season (i.e., between November and March), then it is recommended that the seed be covered with a natural fiber matting, rice straw, or another mulch cover, approved by the Engineer or Project Biologist, to minimize its potential loss prior to the rainy season.

Seeding shall be started only after soil preparation and finish grading has been completed and accepted.

**800-2.8 Hydro Seeding.**

- a) Spray all areas with a uniform, visible coat using the green color of the mulch as a guide. The slurry shall be applied in a sweeping motion, in an arched stream so as to fall like rain allowing the mulch fibers to build on each other until a good coat is achieved and the material is spread at the required rate per acre. The applicator shall use care not to drag spray hoses over existing plant material and shall attempt to spray from the edges of the planting areas whenever possible.
- b) Any slurry mixture which has not been applied to the planting areas within 4 hours after mixing will be rejected and removed from the Project at the Contractor's expense.

- c) Any slurry spilled into areas outside the limits of work shall be cleaned up at the Contractor's expense to the satisfaction of the Project Biologist and the Engineer.
- d) It shall be the responsibility of the applicator to coordinate with the Project Biologist to assure the Site is properly prepared prior to hydro seeding.
- e) The applicator shall be responsible for notifying the landscape Contractor, Project Biologist and Engineer if he feels the Site is not properly prepared. The hydroseed applicator shall be responsible for repairing all tire ruts created by the equipments; unless the Landscape Contractor has been notified of poor soil conditions (e.g., too wet and insufficient compaction) and is requested to continue.
- f) Areas needing grading repair prior to hydro seeding shall be blended and floated to match surrounding grades. Where insufficient seed coverage/germination has occurred these areas shall be reseeded, every 10 days until filled in to the satisfaction of the Project Biologist and Engineer.
- g) The applicator shall coordinate with the City's representatives to gain access to the Site, and to pre-arrange for the slurry mixing.

**800-2.9 Container Planting.** Planting shall be performed in accordance with 308-4.5, "Tree and Shrub Planting" in the Revegetation Plan and as follows.

Actual planting shall be performed during those periods when weather and soils conditions are suitable and in accordance with locally accepted horticultural practice, as approved by the Engineer or Project Biologist. No planting shall be done in any area until it has been satisfactorily prepared in accordance with these Specifications. The Contractor shall obtain approval from the Project Biologist of planting pit locations prior to planting. Plants shall be planted and watered as herein specified immediately after the removal from the containers. Containers shall not be cut prior to placing the plants in the planting area.

Planting shall not be performed if plant pits contain standing water, or if pits are over saturated to a condition which may result in an unhealthful condition for the plant. It is the Contractor's responsibility to provide a suitable growing condition for the plant material and to maintain that condition throughout the entire contract period.

Pits for container-grown plants shall be dug 12 times as deep and three times as wide as the container. Large clods shall be broken up and the sides of the pits should be scarified to avoid a smooth bathtub effect. The planting hole shall be filled with water. The water shall be allowed to percolate into the subsoil. Likewise, all plants shall be thoroughly watered in their containers before planting. Native backfill material shall be placed into the bottom of the hole, moistened and tamped, and mounded slightly. Plants shall be centered in each pit in a vertical position so that the top of the root ball is set one inch above the finish grade. This will allow for settling during initial watering. The pits shall be backfilled with soil thoroughly settled by water application. Two 21-gram plant tablets shall be added on opposite sides of the planting hole. A small earthen berm shall be constructed around each plant. The reservoir berm for one-gallon plantings shall be a minimum of 12" in diameter and 2" in height. Thoroughly hand-water the basin. Allow to soak and repeat.



**800-2.10 Erosion Control Matting.** Construction corridors steeper than a 3:1 slope shall receive erosion control matting after grading and seeding have been completed.

**800-2.11 Maintenance and Plant Establishment.** For the purpose of this part DELETE 308-6, "Maintenance and Plant Establishment" in its entirety and SUBSTITUTE the following:

After planting is completed, a field notification will be issued to the Contractor to establish the effective beginning date of the Plant Establishment Period. The Plant Establishment Period shall be for a period of 120 days and shall be extended by the Engineer if in the City's sole discretion the planted areas are improperly maintained, appreciable plant replacement is required, additional planting is required to achieve 100% cover at the end of the Maintenance and Monitoring Program described in this part, or other corrective work becomes necessary. Contractor shall maintain all planted areas on a continuous basis as they are completed during the progress of the Work and during the Plant Establishment Period. Upon completion of the Plant Establishment Period, a final inspection for acceptance will be performed by the Engineer.

The Contractor shall notify the City's landscape advisor immediately following planting to schedule monthly inspections for the first four months to verify germination and establishment. After the first four months, and if the Plant Establishment Period is still in effect, inspections shall occur in accordance with the Special Provisions.

After construction and throughout the Plant Establishment period, the Contractor shall remove invasive exotic weeds in the revegetation area by hand. The Contractor shall remove weed seedlings before they become too large for hand removal.

Weed materials shall be completely removed from the revegetation area and disposed of at the county landfill or at a location approved of by the Engineer.

The Contractor shall meet all success Standards and perform any remedial measures required in accordance with the Revegetation Plan.

The Contractor shall maintain all revegetated areas in a vigorous and thriving condition by weeding, cultivating, and by any other necessary operations during the entire period of installation and Plant Establishment Period. Improper maintenance which may cause poor conditions of seeded material at termination of the scheduled contract period will cause postponement of final acceptance of work.

Fertilizers shall not be necessary for the seeded areas unless prescribed by the Project Biologist.

The Contractor shall be responsible for immediately controlling any insect infestations and diseases that may spread throughout the revegetated areas. The use of pesticides shall require prior approval by the Engineer and Project Biologist.

The Contractor shall be responsible for the monitoring and control of herbivore activity within revegetated areas and shall inform the Project Biologist within 24 hours of discovery, who shall then prescribe remedial action. Any remedial action, such as fencing and/or protective cages, shall be provided at the Contractor's expense.

Native vegetation and branch drop shall be retained in place unless removal is specially required. Removal of vegetation shall be pre-approved by the Project Biologist and the Engineer.

The Contractor shall remove and dispose off-site all non-organic debris. Removal of trash and litter shall continue on a regular basis during the Plant Establishment Period. Organic debris resulting from weed and exotic plant removal shall be removed from the site(s) and disposed of at County landfill to avoid further introduction of undesirable exotic seed and propagates.

The Contractor shall maintain silt and construction area fences on a continual basis throughout construction activity and the Plant Establishment Period.

The Contractor shall be responsible for the maintenance of all erosion control features indicated in the specifications. Contractor shall install additional erosion control measures as prescribed by Engineer or Project Biologist after evaluation of potential or existing erosion problems on a case-by-case basis.

The Contractor shall monitor for erosion within revegetation areas and shall prohibit gullies, rill and sheet erosion, bare soil areas and silt deposition from occurring. Erosion control shall emphasize prevention. If required, repair of eroded areas may include redirection of dissipation of the water source and re-contouring of soil followed by seeding, mulching, and planting as directed by Engineer. The plant palette for re-seeded areas shall conform to the original seed species and quantities. Invasive exotic species are prohibited for erosion control.

Upon completion of the Plant Establishment Period, a final inspection for acceptance will be performed by the Project Biologist and Engineer, provided all previous deficiencies have been corrected. Contractor will be notified in writing that contract work and the PEP have been accepted or that the PEP has been extended to correct any deficiencies remaining.

**800-2.12 Extended Maintenance and Monitoring Program.** When the Plant Establishment Period is completed to the satisfaction of the Engineer, an extended revegetation maintenance and monitoring program [Monitoring Program] shall commence in accordance with the Special Provisions. The Contractor shall perform the Monitoring Program in accordance with the terms of the Extended Revegetation Maintenance and Monitoring Contract, included in the Contract Documents. The City will issue a field notification to the Contractor to establish the commencement date of the Monitoring Program. The Contractor's obligation will be satisfied upon the commencement date of the Monitoring Program, and the NOC shall not be invalid by reason of the Contractor's obligations and work performed in accordance with the Extended Revegetation Maintenance and Monitoring Contract.

**800-2.13 Warranty and Replacements.** Where seeded areas show signs of failure to grow at any time during the life of the contract and where seeded areas are so injured, damaged, dead or diseased as to render them unsuitable for the intended purpose, the Contractor

shall reseed these areas within 30 days of receipt of written notice by Engineer at no additional cost to the owner.

Seed species used for reseeding shall be the same species and quantity in accordance with the original seed list. Reseeding shall be furnished without cost to the Owner.

The Contractor's warranty period may be extended in cases where plants are slow to establish. If Contractor fails to replace plants within the 30 day time limit, Engineer may replace them at Contractor's expense 5 days after written notice to Contractor.

The Contractor shall not be held responsible for failures due to vandalism and Acts of God during warranty period. Such conditions which exempt Contractor from the warranty shall be documented in writing by Contractor and delivered to Engineer within 1 month of occurrence.

**800-2.14 Revegetation Red-lines.** Within 4 weeks of the end of the 120-Day Plant Establishment Period (as determined and accepted by the Project Biologist), the Contractor shall furnish and submit to the Engineer 1 full scale Red-line set showing field changes to grade, erosion control, and seeding for the revegetated areas.

**800-2.15 Payment.** The payment for revegetation including revegetation maintenance and monitoring shall be included in the following Bid items unless specified otherwise in the Extended Revegetation Maintenance and Monitoring Contract:

- a) Clearing and Grubbing (SY)
- b) Construction Fencing and Access Route (SY)
- c) Erosion Control (SF)
- d) Monitoring and Reporting (LS)
- e) Planting, Irrigation, and Maintenance (LS)

### SECTION 801 – WATER POLLUTION CONTROL

**801-1 DEFINITIONS.** For the purpose of these specifications and 7-8.6, "Water Pollution Control" the following definitions apply:

**Best Management Practice (BMP)** - (1) A method that is implemented to protect water quality and reduce the potential for pollution associated with storm water runoff and construction activities, (2) any program, technology, process, sitting criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution.

**Clean Water Act (CWA)** - The Federal Water Pollution Control Act enacted in 1972 by Public Law 92-500 and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to Waters of the United States unless said discharge is in accordance with an NPDES permit. The 1987 amendments include guidelines for regulating municipal, industrial, and construction storm water discharges under the NPDES program.

**Linear Construction Activity Notification (LCAN)** - A Notification form to be filed with the Regional Water Quality Control Board (RWQCB) which details SLUP project information including when a SLUP project will be constructed. This form should be filed prior to construction.

**Linear Construction Termination Notification (LCTN)** - A Notification form to be filed with RWQCB which details that the construction for SLUP project (previously notified with a LCAN) will be or has been terminated.

**Maximum Extent Practicable (MEP)** - The technology-based standard established by Congress in the Clean Water Act 402(p)(3)(B)(iii) that municipal discharges of urban runoff shall meet. MEP generally emphasizes pollution prevention and source control BMP's primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional lines of defense).

**National Pollutant Discharge Elimination System (NPDES)** - The Environmental Protection Agency's (EPA) program to control the discharge of pollutants to waters of the United States. NPDES is a part of the federal CWA, which requires point and non-point source discharges to obtain permits. These permits are referred to as NPDES permits.

**Qualified Contact Person (QCP)** - The QCP shall be trained and competent in the use of BMP's and shall be on site daily to evaluate the conditions of the Site with respect to storm water pollution prevention.

**Small Linear Underground/Overhead Construction Project Permit (Small LUP)** - The Waster Discharge Requirements for Discharges of Storm Water Runoff Associated with Small Linear Underground/Overhead Construction Projects, General Permit No CAS00005 that regulates storm water discharges from Small LUP and includes, but are not limited to, any conveyance, pipe, or pipeline for the transportation an any gaseous, liquid, liquescent or slurry substance and/or transmission of electrical energy and associated ancillary facilities. The Small LUP regulates construction activities associated with these projects.

**Storm Water Pollution Prevention Plan (SWPPP)** - A document required by the State General Construction Permit, No. CAS000002 and No. CAS0108758 ([www.swrcb.ca.gov](http://www.swrcb.ca.gov)).

The SWPPP document includes site map(s), an identification of construction and the Contractor activities that could potentially cause pollutant discharges, a plan on the methods and a description of measures or practices to control these pollutants. As part of the SWPPP, a Sampling and Analysis Program shall be implemented throughout construction. A SWPPP is required for sites with one acre or more of impact.

**Tier I Storm Water Pollution Prevention Plan (Tier I SWPPP)** - A document required by the State General Construction Permit for storm water discharges associated with construction activity from small linear underground/overhead projects ([www.waterboards.ca.gov](http://www.waterboards.ca.gov)). The document includes site map(s), an identification of construction and the Contractor activities that could potentially cause pollutant discharges in the storm water, a plan on the methods and a description of measures or practices to control these pollutants. A TIER I SWPPP is

required for linear sites with between one and five acres of impact, where greater than 70% of construction activity is within paved areas.

**Tier II Storm Water Pollution Prevention Plan (Tier II SWPPP)** - A document required by the State General Construction Permit for storm water discharges associated with construction activity from small linear underground/overhead projects ([www.waterboards.ca.gov](http://www.waterboards.ca.gov)). The document includes site map(s), an identification of construction and the Contractor activities that could potentially cause pollutant discharges in the storm water, a plan on the methods and a description of measures or practices to control these pollutants. A TIER II SWPPP is required for linear sites with between one and five acres of impact, where greater than 30% of construction activity is within unpaved areas.

**Water Pollution Control Plan (WPCP)** - A plan required by the City Storm water Standards Manual that shall indicate BMP placement and methods to prevent storm water pollution and non-storm water discharges. The WPCP is required for sites with less than 1 acre of ground disturbance inclusive of any unpaved areas associated with the Project.

**Weather Triggered Action Plan (WTAP)** - A written plan that shall be deployed with standby BMP's as needed to protect the exposed portions of the site within 24 hours of prediction of a storm event (a predicted storm event is defined as a forecasted, 40% or greater chance of rain).

**801-2 WATER POLLUTION CONTROL SUPPLEMENTAL PROVISIONS.** The Contractor shall defend, indemnify, protect, and hold harmless the City, its agents, officers, and employees, from and against all claims asserted, or liability established for damages or injuries to any person or property resulting from an Illegal Discharge caused by the Contractor's action or failure to take measures to prevent an Illegal Discharge. The Contractor shall be responsible for payment of any fines or penalties assessed against the City for an Illegal Discharge. The Contractor's duty to indemnify and hold harmless shall not include any claims or liability arising from the established sole negligence or willful misconduct of the City, its agents or employees.

Illegal Discharge shall be any discharge to the City's Storm Water Conveyance System that is not composed entirely of Storm Water, or is prohibited by federal, state, or local laws, or degrades the quality of Receiving Waters in violation of any Plan Water Quality Objective. The terms "Storm Water Conveyance System," "Storm Water," "Receiving Waters," and "Plan Water Quality Objective" shall be defined as set forth in San Diego Municipal Code section 43.0302, which is herein incorporated by reference into this contract.

The Contractor shall exercise care when excavating adjacent to existing sewer systems. The Contractor shall include in its Bid all labor and materials necessary to protect existing sewer facilities.

The Contractor shall comply with all applicable standards, rules regulations, orders and requirements issued under Section 508 of the Clean Water Act (33 U.S.C. 1368) Executive Order 11738, the San Diego Municipal Code and all applicable federal, state and the City standards, rules, regulations, orders and requirements.

The lump sum price for construction BMP's shall cover the work involved in furnishing, placing, maintaining, and removing and disposing of waste and related to water pollution measures as specified and as directed by the Engineer in accordance with 2-6, "WORK TO BE DONE." Payments for lump sum construction BMP's will be made on a monthly basis and based on the progress and evaluation of the work at the Engineer's discretion.

The Contractor shall refer to the Supplementary Special Provisions (SSP) part of this contract to determine which of the following versions of additional water pollution control requirements apply to this contract. For permit projects, disregard references to measurement and payment and refer to the permit conditions for additional requirements.

### SWPPP VERSION

**801-2.1 Site Management.** The Contractor shall prepare the 100% SWPPP based on the SWPPP document prepared by the City during the design phase 90%. The 100% SWPPP shall incorporate additional BMP's and a revised site map to show activity locations (e.g., staging area) and controls that could not be determined during the design stage. The 100% SWPPP shall include a site specific Sampling and Analysis Program in accordance with the requirements set forth in the State General Construction Permit.

The Contractor shall submit the draft 100% SWPPP to the City for review at the preconstruction meeting. The Contractor shall revise the SWPPP to the satisfaction of the City, file one copy of the completed SWPPP with the City, and maintain the SWPPP at the Site. The Contractor shall implement and update the SWPPP when necessary to match Site conditions, monitor the Site, and maintain BMP's in effective working condition. The Contractor is required to have a Waste Dischargers Identification number (WDID #) prior to start on any construction activities.

The Contractor shall do the following:

Designate a QCP that shall be responsible for the implementation, maintenance and improvement of the BMP's and SWPPP. The QCP shall be trained and competent in the use of BMP's and shall be on site daily to evaluate the conditions of the Site with respect to storm water pollution prevention.

The QCP shall be responsible for monitoring the weather and implementation of any emergency plans that shall be activated when there is a 40% or greater chance of rain. The weather shall be monitored with the National Weather Service at <http://www.nws.noaa.gov> on a 5-day forecast plan.

The QCP shall be responsible for overseeing any site grading and construction operations, and for evaluating the effectiveness of the BMP's. The QCP shall ensure the modification of the BMP's as necessary to keep the Site in compliance and to ensure adequate, routine maintenance of the BMP's.

Educate all Subcontractors and employees about storm water pollution prevention measures required during construction activities to prevent the impact of construction discharges to the storm water conveyance system. Education requirements shall be in

accordance with State General Construction Permit, No. CAS000002 and No. CAS0108758. The Contractor shall ensure that all personnel are trained in basic storm water construction management. A log of the trained staff and the educational materials shall be kept in the SWPPP file and available upon request by the Engineer.

Protect all new and existing storm water conveyance systems from sedimentation, concrete rinse, or other construction related debris and discharges with the appropriate BMP's that are acceptable to the Engineer and as indicated in the SWPPP.

Indicate in the SWPPP the locations of BMP's (e.g., concrete wash out, vehicle maintenance, staging and storage area protection, etc.) to be implemented. The Contractor shall ensure that these areas will be utilized properly and maintained regularly.

Ensure that all waste and debris generated during the period of construction is contained within the storage and staging area. No dust, oil, or contaminated run-off shall be allowed out of the storage and staging area. Perimeter and run-off control measures shall be installed around the storage and staging area. The entrance to the construction storage and staging area shall have stabilized gravel entrances/roadways, metal pans to loosen dirt from tires, or the like, to reduce tracking and create a sediment barrier between the storage and staging area and the roadway.

Inspect and document monthly at a minimum or as directed by the Engineer all BMP's, during the dry season, May 1 through September 30. Inspect and document weekly, at a minimum or as directed by the Engineer all BMP's, during the rainy season October 1 through April 30. The Contractor shall include documentation in the SWPPP that BMP's were inspected at the intervals required and shall update and maintain this documentation for the duration of the Project. The SWPPP and the updates shall be available to the Engineer upon request.

Conduct visual inspections daily and maintain all BMP's as needed and before, during and after every rain event and every 24 hours at a minimum during any prolonged rain event. The Contractor shall maintain and repair all BMP's as soon as possible as safety allows.

Return the land areas disturbed during construction to the pre-construction or equivalent protection, at the end of each workday to eliminate or minimize erosion and the possibility for discharge of sediment or other pollutants during a rain event.

If a non-storm water discharge leaves the Site, the Contractor shall immediately stop the activity and repair the damages. The Contractor shall immediately notify the Engineer of the discharge. As soon as practical, any and all waste material, sediment and debris from each non storm water discharge shall be removed from the storm drain conveyance system and properly disposed of by the Contractor at no cost to the City.

Payment for Water Pollution Control shall be included in the other Bid items unless specific Bid item(s) is (are) provided in the Bid.



**801-2.2 Performance Standards.** The Contractor shall be responsible for implementing all water pollution control measures based on performance standards. Performance standards shall include:

- a) Non-storm water discharges from the Site shall not occur to the MEP. All storm water discharges shall be free of pollutants including sediment to the MEP.
- b) Erosion shall be controlled by acceptable BMP's. If rills and gullies appear they shall be repaired and additional BMP's installed to prevent a reoccurrence of erosion.
- c) An inactive site shall be protected to prevent pollutant discharges. A site or portions of a site shall be considered inactive when construction activities have ceased for a period of 7 or more consecutive days.

Good housekeeping BMP's shall be implemented and maintained at all times during construction. The Contractor is responsible for clean-up of debris, concrete waste, sweeping, and dust control. Construction debris and waste shall be contained and disposed of properly. Access locations shall be kept clean and swept daily or more often as needed to assure no sediment leaves the Site. The surrounding public streets shall be kept clean and swept daily and as needed to keep sediment out of the storm drain conveyance system.

The Contractor shall defend, indemnify, protect, and hold harmless the City, its agents, officers, and employees, from and against all claims asserted, or liability established for damages, obligations, penalties, fines, actions (including remedial or enforcement actions of any kind and administrative or judicial proceedings, orders, or judgments), and costs resulting from any violations, failure to implement, maintain, or follow Best Management Practices, and/or losses arising out of or resulting from discharge of storm water containing sediment or other pollutants from the Project to the waters of the City's Storm Water Conveyance System, State or United States in quantities or concentrations exceeding those which would have occurred in the pre-construction condition of the Project and/or the discharge of any other contaminants in storm water that cause or contribute to the excess of a water quality objective for the receiving water as established in the San Diego Municipal Storm Water Permit and Water Quality Control Plan for the San Diego Basin (9). The Contractor's duty to indemnify and hold harmless shall not include any claims or liability arising from the established sole negligence or willful misconduct of the City, its agents, officers or employees.

The Contractor shall implement BMP's in accordance with the California Storm Water Quality Association (CASQA) handbooks ([www.cabmphandbooks.org](http://www.cabmphandbooks.org)) and in accordance with the California General Permit for Construction Activities ([www.swrcb.ca.gov](http://www.swrcb.ca.gov)). It is the Contractor's responsibility on both active and inactive sites to implement BMP's for all potential pollutant discharges.

**801-2.3 Dry Season Requirements (May 1 through September 30):**

Perimeter protection BMP's shall be installed and maintained to comply with the performance standards listed in 801-2.2, "Performance Standards."

Sediment control BMP's shall be installed and maintained to comply with the performance standards listed in 801-2.2, "Performance Standards."

Sediment tracking control BMP's shall be installed and maintained at Site entrances and exits to comply with the performance standards listed in 801-2.2, "Performance Standards."

Standby BMP materials necessary to protect the Site against erosion, to prevent sediment discharge, and to prevent non storm water discharges shall be stored on Site and readily accessible.

The Contractor shall have an approved WTAP and have the ability to install standby BMP's to protect the Site to the MEP within 24 hours of prediction of a storm event defined as a forecasted, 40% or greater chance of rain. On request, the Contractor shall provide proof of this capability that is acceptable to the RE.

The amount of exposed soil allowed at one time shall not exceed that which can be adequately protected by deploying standby erosion control and sediment control BMP's prior to a predicted storm event.

**801-2.4 Rainy Season Requirements (October 1 through April 30).** In addition to the requirements listed under the Dry Season Requirements, the following shall be required during the rainy season:

- a) Erosion control BMP's shall be adequate to the MEP to provide protection for storm events, during the rainy season.
- b) Perimeter protection and sediment control BMP's shall be adequate and to the MEP upgraded as necessary to provide sufficient protection for storms likely to occur during the rainy season.
- c) Physical or vegetation erosion control BMP's shall be installed and established for all completed construction areas prior to the start of the rainy season, and shall comply with the performance standards listed in these specifications. These BMP's shall be maintained throughout the rainy season. If a BMP fails, it shall be repaired and improved, or replaced with an acceptable alternate as soon as safety allows.
- d) A disturbed area that is not being actively graded or excavated for 7 or more consecutive days shall be fully protected from erosion. The weather triggered action plan shall apply to inactive areas.

**801-2.5 Construction BMP's.** It is the responsibility of the Contractor to select, install and maintain appropriate BMP's in accordance with these specifications. It is the Contractor's responsibility to ensure that the BMP's are operational and working properly. BMP's shall be installed in accordance with California Storm Water BMP handbooks ([www.cabmphandbooks.org](http://www.cabmphandbooks.org)) and in accordance with the California General Permit for Construction Activities (<http://www.swrcb.ca.gov>). All BMP measures shall be identified in the SWPPP.

A price breakdown for the lump sum BMP items shall be provided before the NTP is issued. The Contractor shall submit deviations or modifications to Engineer.

**801-2.6 Erosion Control.** The Contractor shall be responsible for selecting and maintaining erosion control BMP's for all construction activities for the duration of the Project. Erosion control BMP's shall include the materials and measures to prevent pollutant discharges to the MEP from occurring.

The payment for erosion control BMP's shall be included in the lump sum Bid item for Erosion Control.

**801-2.7 Sediment Control.** Adequate sediment control is required for all construction activities that may generate pollutants. The Contractor shall be responsible for selecting and maintaining sediment control BMP's for the duration of the Project. Sediment control BMP's shall include the materials and measures to prevent pollutant discharges to the MEP from occurring.

The payment for sediment control BMP's shall be included in the lump sum Bid item for Sediment Control.

**801-2.8 Storm Drain Inlet Protection.** The Contractor shall install and maintain Storm Drain inlet protection throughout construction and remove when project is completed and there is no longer a potential to discharge pollutants.

The Contractor shall be responsible for preventing any flooding associated with storm drain inlet protection. The area around the inlet shall allow water to pond without flooding the traveled way, structures and private property. Any BMP's temporarily removed by the Contractor to alleviate flooding shall be replaced or modified immediately as safety allows.

The storm drain inlet sediment control measures shall not impede the safe flow of traffic. The storm drain inlet sediment control measures shall be of sufficient weight so as not to shift out of place, or shall be secured in place against movement.

Inlet sediment control measures shall be maintained daily or more often as needed. Maintaining inlet sediment control measures shall include but not be limited to replacing damaged BMP's, removing and disposing of accumulated sediment, trash and debris. Waste materials shall be removed and disposed of in accordance with 7-8, "WORK SITE MAINTENANCE."

The payment for storm drain inlet protection shall be included in the Bid item for Storm Drain Protection.

**801-2.9 Non-Storm Water and Materials Management BMP's.** The SWPPP shall include pollution control measures and associated locations for equipment maintenance, fueling, concrete washouts, cleaning and storage.

The Contractor shall avoid placing stock piles in any drainage path. The Engineer may approve temporary stockpiling in a drainage path provided that measures are taken to allow unimpeded drainage, and sediment transport is prevented. Regardless of the location of

stockpiled materials, containment measures are to be employed to control dust and sediment movement arising from wind, rain, and/or runoff. Controlling measures include but are not limited to covering the stockpiled material and the installation of protection around the perimeter of the stockpiled material during rain events and winds.

The payment shall be included in the lump sum price for Non-Stormwater and Materials Management BMP's.

**801-2.10 Street Sweeping.** The Contractor shall sweep the streets impacted by construction activities daily, and as often as needed, with a motor sweeper in accordance with 7-8, "WORK SITE MAINTENANCE." Blowers shall not be used on Site.

The payment shall be included in the lump sum price for Street Sweeping.

**801-2.11 Weather Triggered Action Plan.** The Contractor shall prepare a written Weather Triggered Action Plan (WTAP) prior to the start of construction. The Contractor shall implement the WTAP within 24 hours of a predicted storm event (a predicted storm event is defined as a forecasted 40% or greater chance of rain). Rain forecasts can be found at [www.nws.noaa.gov](http://www.nws.noaa.gov). The WTAP shall identify the staffing responsible for implementing, monitoring and maintaining the BMP's prior to and during the storm event, and shall identify on Site availability of BMP's that will be installed on the exposed portions of the Site to minimize erosion and sediment discharges, and prevent non-storm water discharges from leaving the Site to the MEP. The WTAP shall be filed in the SWPPP, WPCP, TIER I, or TIER II document and updated as Site conditions change.

The lump sum Bid price for the WTAP shall include preparation and implementation of the WTAP for the duration of the Project.

**801-2.12 Inlet Markers.** The Contractor shall mark every storm drain inlet within the projects boundaries with adhesive decal-discs or an imbedded concrete stamp. The Contractor shall use decal-discs on existing inlets and concrete stamps on new inlets. The concrete stamp is available from the Engineer with five days advance notice. On curb inlets the concrete stamp or decal discs shall be placed on the top of curb at the inlet roof. On catch basins, the concrete stamp shall be imprinted next to the inlet grate.

The payment for inlet markers shall be included in the Bid unit price for Storm Drain Inlet Markers.

### TIER I VERSION

**801-2.1 Site Management.** The Contractor shall prepare the Tier I SWPPP based on the Tier I SWPPP template available at [www.waterboards.ca.gov](http://www.waterboards.ca.gov). The Tier I SWPPP shall include a Site specific Sampling and Analysis Program in accordance with the requirements set forth in the Small LUP Permit. The Contractor shall submit the Tier I SWPPP to the City for review at the preconstruction meeting. The Contractor shall revise the Tier I SWPPP to the satisfaction of the City, file one copy of the completed Tier I SWPPP with the City, and maintain the Tier I SWPPP at the Site. The Contractor shall implement and update the Tier I SWPPP when necessary to match Site conditions, monitor the construction Site, and maintain BMP's in

effective working condition. The City will file a LCAN prior to start on any construction activities.

The Contractor shall do the following:

- a) Designate a QCP that shall be responsible for the implementation, maintenance and improvement of the BMP's and Tier I SWPPP. The QCP shall be trained and competent in the use of BMP's and shall be on Site daily to evaluate the conditions of the Site with respect to storm water pollution prevention.
  - a. The QCP shall be responsible for monitoring the weather and implementation of any emergency plans that shall be activated when there is a 40% or greater chance of rain. The weather shall be monitored with the National Weather Service at [www.nws.noaa.gov](http://www.nws.noaa.gov) on a 5-day forecast plan.
  - b. The QCP shall be responsible for overseeing any site grading and construction operations, and for evaluating the effectiveness of the BMP's. The QCP shall ensure the modification of the BMP's as necessary to keep the Site in compliance and to ensure adequate, routine maintenance of the BMP's.
- b) Educate all Subcontractors and employees about storm water pollution prevention measures required during construction activities to prevent the impact of construction discharges to the storm water conveyance system. Education requirements shall be in accordance with The Waste Discharge Requirements for Discharge of Urban Runoff from the Municipal Storm Sewer System, General Permit No. CAS000002 and No. CAS0108758. The Contractor shall ensure that all personnel are trained in basic storm water construction management. A log of the trained staff and the educational materials shall be kept in the Tier I SWPPP file and available upon request by the Engineer.
- c) Protect all new and existing storm water conveyance systems from sedimentation, concrete rinse, or other construction related debris and discharges with the appropriate BMP's that are acceptable to the Engineer and as indicated in the Tier I SWPPP.
- d) Indicate in the Tier I SWPPP the locations of BMP's (i.e., concrete wash out, vehicle maintenance, staging and storage area protection, etc.) to be implemented. The Contractor shall ensure that these areas will be utilized properly and maintained regularly.
- e) Ensure that all waste and debris generated during the period of construction is contained within the storage and staging area. No dust, oil, or contaminated run-off shall be allowed out of the storage and staging area. Perimeter and run-off control measures shall be installed around the storage and staging area. The entrance to the construction storage and staging area shall have stabilized gravel entrances/roadways, metal pans to loosen dirt from tires, or the like, to reduce tracking and create a sediment barrier between the storage and staging area and the roadway.

- f) Inspect and document monthly at a minimum or as directed by the Engineer, all BMP's during the dry season, May 1 through September 30. Inspect and document weekly, at a minimum or as directed by the RE, all BMP's during the rainy season October 1 through April 30. The Contractor shall include documentation in the SWPPP that BMP's were inspected at the intervals required and shall update and maintain this documentation for the duration of the Project. The SWPPP and the updates shall be available to the Engineer upon request.
- g) Conduct visual inspections daily and maintain all BMP's as needed and before, during and after every rain event and every 24 hours at a minimum during any prolonged rain event. The Contractor shall maintain and repair all BMP's as soon as possible as safety allows.
- h) Return the land areas disturbed during construction to the pre-construction or equivalent protection, at the end of each workday to eliminate or minimize erosion and the possibility for discharge of sediment or other pollutants during a rain event.

If a non-storm water discharge leaves the Site, the Contractor shall immediately stop the activity and repair the damages. The Contractor shall immediately notify the Engineer of the discharge. As soon as practical, any and all waste material, sediment and debris from each non storm water discharge shall be removed from the storm drain conveyance system and properly disposed of by the Contractor at no cost to the City.

The payment for Water Pollution Control shall be included in the other Bid items unless specific Bid item(s) is (are) provided in the Bid.

**801-2.2 Performance Standards.** The Contractor shall be responsible for implementing all storm water pollution control measures based on performance standards. Performance standards shall include:

- a) Non-storm water discharges from the Site shall not occur to the MEP. All storm water discharges shall be free of pollutants including sediment to the MEP.
- b) Erosion shall be controlled by acceptable BMP's. If rills and gullies appear they shall be repaired and additional BMP's installed to prevent a reoccurrence of erosion.
- c) An inactive site shall be protected to prevent pollutant discharges. A site or portions of a site shall be considered inactive when construction activities have ceased for a period of 7 or more consecutive days.

Good housekeeping BMP's shall be implemented and maintained at all times during construction. The Contractor is responsible for the clean-up of debris, concrete waste, sweeping, and dust control. Construction debris and waste shall be contained and disposed of properly. Access locations shall be kept clean and swept daily or more often as needed to assure no sediment leaves the Site. The surrounding public streets shall be kept clean and swept daily and as needed to keep sediment out of the storm drain conveyance system.

The Contractor shall defend, indemnify, protect, and hold harmless the City, its agents, officers, and employees, from and against all claims asserted, or liability established for

damages, obligations, penalties, fines, actions (including remedial or enforcement actions of any kind and administrative or judicial proceedings, orders, or judgments), and costs resulting from any violations, failure to implement, maintain, or follow Best Management Practices, and/or losses arising out of or resulting from discharge of storm water containing sediment or other pollutants from the Project to the waters of the City's Storm Water Conveyance System, State or United States in quantities or concentrations exceeding those which would have occurred in the pre-construction condition of the Project and/or the discharge of any other contaminants in storm water that cause or contribute to the excess of a water quality objective for the receiving water as established in the San Diego Municipal Storm Water Permit and Water Quality Control Plan for the San Diego Basin (9). The Contractor's duty to indemnify and hold harmless shall not include any claims or liability arising from the established sole negligence or willful misconduct of the City, its agents, officers or employees.

The Contractor shall implement BMP's in accordance with the California Storm Water Quality Association (CASQA) handbooks ([www.cabmphandbooks.org](http://www.cabmphandbooks.org)) and in accordance with the Small Linear Utility Permit for Construction Activities ([www.swrcb.ca.gov](http://www.swrcb.ca.gov)). It is the Contractor's responsibility on both active and inactive sites to implement BMP's for all potential pollutant discharges.

### **801-2.3 Dry Season Requirements (May 1 through September 30).**

- a) Perimeter protection BMP's shall be installed and maintained to comply with the performance standards listed in 801-2.2, "Performance Standards."
- b) Sediment control BMP's shall be installed and maintained to comply with the performance standards listed in 801-2.2, "Performance Standards."
- c) Sediment tracking control BMP's shall be installed and maintained at Site entrances and exits to comply with the performance standards listed in 801-2.2, "Performance Standards."
- d) Standby BMP materials necessary to protect the Site against erosion, to prevent sediment discharge, and to prevent non-storm water discharges shall be stored on Site and readily accessible.
- e) The Contractor shall have an approved WTAP and have the ability to install standby BMP's to protect the Site to the MEP within 24 hours of prediction of a storm event defined as a forecasted 40% or greater chance of rain. The Contractor shall provide proof of this capability that is acceptable to the RE upon request.
- f) The amount of exposed soil allowed at one time shall not exceed that which can be adequately protected by deploying standby erosion control and sediment control BMP's prior to a predicted storm event.

**801-2.4 Rainy Season Requirements (October 1 through April 30).** In addition to the requirements listed under the Dry Season Requirements, the following shall be required during the rainy season:



- a) Erosion control BMP's shall be adequate to the MEP to provide protection for storm events, during the rainy season.
- b) Perimeter protection and sediment control BMP's shall be adequate to the MEP upgraded as necessary to provide sufficient protection for storms likely to occur during the rainy season.
- c) Physical or vegetation erosion control BMP's shall be installed and established for all completed construction areas prior to the start of the rainy season, and shall comply with the performance standards listed in these specifications. These BMP's shall be maintained throughout the rainy season. If a BMP fails, it shall be repaired and improved, or replaced with an acceptable alternate as soon as safety allows.
- d) A disturbed area that is not being actively graded or excavated for 7 or more consecutive days shall be fully protected from erosion. The weather triggered action plan shall apply to inactive areas.

**801-2.5 Construction BMP's.** It is the responsibility of the Contractor to select, install and maintain appropriate BMP's in accordance with these specifications. It is the Contractor's responsibility to ensure that the BMP's are operational and working properly. BMP's shall be installed in accordance with California Storm Water BMP handbooks ([www.cabmphandbooks.org](http://www.cabmphandbooks.org)) and in accordance with the State General Permit for storm water discharges associated with construction activity from small linear underground/overhead projects ([www.waterboards.ca.gov/stormwtr/linear\\_const.html](http://www.waterboards.ca.gov/stormwtr/linear_const.html)).

All BMP measures shall be identified in the Tier I SWPPP. A cost breakdown for the lump sum BMP items shall be provided before the NTP is issued. The Contractor shall submit deviations or modifications to Engineer.

**801-2.6 Erosion Control.** The Contractor shall be responsible for selecting and maintaining erosion control BMP's for all construction activities for the duration of the Project. Erosion control BMP's shall include the materials and measures to prevent pollutant discharges to the MEP from occurring.

The payment for erosion control shall be included in the lump sum Bid item for Erosion Control.

**801-2.7 Sediment Control.** Adequate sediment control is required for all construction activities that may generate pollutants. The Contractor shall be responsible for selecting and maintaining sediment control BMP's for the duration of the Project. Sediment control BMP's shall include the materials and measures to prevent pollutant discharges to the MEP from occurring.

The payment for sediment control shall be included in the lump sum Bid item for Sediment Control.

**801-2.8 Storm Drain Inlet Protection.** The Contractor shall install and maintain Storm Drain Inlet Protection throughout construction and remove when the Project is completed and there is no longer a potential to discharge pollutants.

The Contractor shall be responsible for preventing any flooding associated with storm drain inlet protection. The area around the inlet shall allow water to pond without flooding the traveled way, structures or private property. Any BMP's temporarily removed by the Contractor to alleviate flooding shall be replaced or modified immediately as safety allows.

The storm drain inlet sediment control measures shall not impede the safe flow of traffic. The storm drain inlet sediment control measures shall be of sufficient weight so as not to shift out of place, or shall be secured in place against movement.

Inlet sediment control measures shall be maintained daily or more often as needed. Maintaining inlet sediment control measures shall include but not be limited to replacing damaged BMP's, removing and disposing of accumulated sediment, trash and debris. Waste materials shall be removed and disposed of in accordance with 7-8, "WORK SITE MAINTENANCE."

The payment for storm drain inlet protection shall be included in the unit Bid price for Storm Drain Inlet protection.

**801-2.9 Non-Storm Water and Materials Management BMP's.** The TIER I SWPPP shall include pollution control measures and associated locations for equipment maintenance, fueling, concrete washouts, cleaning and storage.

The Contractor shall avoid placing stock piles in any drainage path. The Engineer may approve temporary stockpiling in a drainage path provided that measures are taken to allow unimpeded drainage, and sediment transport is prevented. Regardless of the location of stockpiled materials, containment measures are to be employed to control dust and sediment movement arising from wind, rain, and/or runoff. Controlling measures include, but are not limited to, covering the stockpiled material and the installation of protection around the perimeter of the stockpiled material during rain events and winds.

The lump sum price for Non-Stormwater and Materials Management BMP's shall cover all pollution control measures for equipment maintenance, fueling, cleaning, materials management and storage.

**801-2.10 Street Sweeping.** The Contractor shall sweep the streets impacted by construction activities daily, and as often as needed, with a motor sweeper in accordance with 7-8, "WORK SITE MAINTENANCE." Blowers shall not be used on Site.

The payment for street sweeping shall be included in the lump sum Bid item for Street Sweeping.

**801-2.11 Weather Triggered Action Plan.** The Contractor shall prepare a written Weather Triggered Action Plan (WTAP) prior to the start of construction. The Contractor shall implement the WTAP within 24 hours of a predicted storm event (a predicted storm event is defined as a forecasted 40% or greater chance of rain). Rain forecasts can be found at [www.nws.noaa.gov](http://www.nws.noaa.gov). The WTAP shall identify the staffing responsible for implementing, monitoring and maintaining the BMP's prior to and during the storm event, and shall identify on site availability of BMP's that will be installed on the exposed portions of the Site

to minimize erosion and sediment discharges, and prevent non-storm water discharges from leaving the Site to the MEP. The WTAP shall be filed in the SWPPP, WPCP, TIER I, or TIER II document and updated as Site conditions change.

The lump sum Bid price for the WTAP shall include preparation and implementation of the WTAP for the duration of the Project.

**801-2.12 Inlet Markers.** The Contractor shall mark every storm drain inlet within the Project boundaries with adhesive decal-discs or an imbedded concrete stamp. The Contractor shall use decal-discs on existing inlets and concrete stamps on new inlets. The concrete stamp is available from the Engineer with five days advance notice. On curb inlets the concrete stamp or decal discs shall be placed on the top of curb at the inlet roof. On catch basins the concrete stamp shall be imprinted next to the inlet grate.

The payment shall be included in the Bid unit price for Storm Drain Inlet Markers.

### TIER II VERSION

**801-2.1 Site Management.** The Contractor shall prepare the 100% Tier II SWPPP based on the 90% Tier II SWPPP to be provided by the City. The 100% Tier II SWPPP shall incorporate additional BMP's and a revised site map to show activity locations (e.g. staging area) and controls that could not be determined during the design stage. The Tier II SWPPP shall include a Site specific Sampling and Analysis Program in accordance with the requirements set forth in the Small LUP Permit. The Contractor shall submit the draft 100% Tier II SWPPP to the City for review at the preconstruction meeting. The Contractor shall revise the Tier II SWPPP to the satisfaction of the City, file one copy of the completed Tier II SWPPP with the City, and maintain the Tier II SWPPP at the Site. The Contractor shall implement and update the Tier II SWPPP when necessary to match Site conditions, monitor the Site, and maintain BMP's in effective working condition. The Contractor is required to have a Waste Dischargers Identification number (WDID #) prior to start on any construction activities.

The Contractor shall do the following:

- a) Designate a QCP that shall be responsible for the implementation, maintenance and improvement of the BMP's and Tier II SWPPP. The QCP shall be trained and competent in the use of BMP's and shall be on Site daily to evaluate the conditions of the Site with respect to storm water pollution prevention.
  - a. The QCP shall be responsible for monitoring the weather and implementation of any emergency plans that shall be activated when there is a 40% or greater chance of rain. The weather shall be monitored with the National Weather Service at [www.nws.noaa.gov](http://www.nws.noaa.gov) on a 5-day forecast plan.
  - b. The QCP shall be responsible for overseeing any site grading and construction operations, and for evaluating the effectiveness of the BMP's. The QCP shall ensure the modification of the BMP's as necessary to keep the Site in compliance and to ensure adequate, routine maintenance of the BMP's.

- b) Educate all Subcontractors and employees about storm water pollution prevention measures required during construction activities to prevent the impact of construction discharges to the storm water conveyance system. Education requirements shall be in accordance with The Waste Discharge Requirements for Discharge of Urban Runoff from the Municipal Storm Sewer System, General Permit No. CAS000002 and No. CAS0108758. The Contractor shall ensure that all personnel are trained in basic storm water construction management. A log of the trained staff and the educational materials shall be kept in the Tier II SWPPP file and available upon request by the Engineer.
- c) Protect all new and existing storm water conveyance systems from sedimentation, concrete rinse, or other construction related debris and discharges with the appropriate BMP's that are acceptable to the Engineer and as indicated in the Tier II SWPPP.
- d) Indicate in the Tier II SWPPP the locations of BMP's (i.e., concrete wash out, vehicle maintenance, staging and storage area protection, etc.) to be implemented. The Contractor shall ensure that these areas will be utilized properly and maintained regularly.
- e) The Contractor shall be responsible for ensuring that all waste and debris generated during the period of construction is contained within the storage and staging area. No dust, oil, or contaminated run-off shall be allowed out of the storage and staging area. Perimeter and run-off control measures shall be installed around the storage and staging area. The entrance to the construction storage and staging area shall have stabilized gravel entrances/roadways, metal pans to loosen dirt from tires, or the like, to reduce tracking and create a sediment barrier between the storage and staging area and the roadway.
- f) Inspect and document monthly at a minimum or as directed by the Engineer, all BMP's during the dry season, May 1 through September 30. Inspect and document weekly, at a minimum or as directed by the Engineer, all BMP's during the rainy season October 1 through April 30. The Contractor shall include documentation in the Tier II SWPPP that BMP's were inspected at the intervals required and shall update and maintain this documentation for the duration of the Project. The Tier II SWPPP and the updates shall be available to the Engineer upon request.
- g) Conduct visual inspections daily and maintain all BMP's as needed and before, during and after every rain event and every 24 hours at a minimum during any prolonged rain event. The Contractor shall maintain and repair all BMP's as soon as possible, as safety allows.
- h) Return the land areas disturbed during construction to the pre-construction or equivalent protection, at the end of each workday to eliminate or minimize erosion and the possibility for discharge of sediment or other pollutants during a rain event.

If a non-storm water discharge leaves the Site, the Contractor shall immediately stop the activity and repair the damages. The Contractor shall immediately notify the Engineer of the discharge. As soon as practical, any and all waste material, sediment and debris from each non storm water discharge shall be removed from the storm drain conveyance system and properly disposed of by the Contractor at no cost to the City.

The payment for Water Pollution Control shall be included in the other Bid items unless specific Bid item(s) is (are) provided in the Bid.

**801-2.2 Performance Standards.** The Contractor shall be responsible for implementing all water pollution control measures based on performance standards. Performance standards shall include:

- a) Non-storm water discharges from the Site shall not occur to the MEP. All storm water discharges shall be free of pollutants including sediment to the MEP.
- b) Erosion shall be controlled by acceptable BMP's. If rills and gullies appear they shall be repaired and additional BMP's installed to prevent a reoccurrence of erosion.
- c) An inactive site shall be protected to prevent pollutant discharges. A site or portions of a site shall be considered inactive when construction activities have ceased for a period of 7 or more consecutive days.
- d) Good housekeeping BMP's shall be implemented and maintained at all times during construction. The Contractor is responsible for all clean-up of debris, concrete waste, sweeping, and dust control. Construction debris and waste shall be contained and disposed of properly. Access locations shall be kept clean and swept daily or more often as needed to assure no sediment leaves the Site. The surrounding public streets shall be kept clean and swept daily and as needed to keep sediment out of the storm drain conveyance system.
- e) The Contractor shall defend, indemnify, protect, and hold harmless the City, its agents, officers, and employees, from and against all claims asserted, or liability established for damages, obligations, penalties, fines, actions (including remedial or enforcement actions of any kind and administrative or judicial proceedings, orders, or judgments), and costs resulting from any violations, failure to implement, maintain, or follow Best Management Practices, and/or losses arising out of or resulting from discharge of storm water containing sediment or other pollutants from the Project to the waters of the City's Storm Water Conveyance System, State or United States in quantities or concentrations exceeding those which would have occurred in the pre-construction condition of the Project and/or the discharge of any other contaminants in storm water that cause or contribute to the excess of a water quality objective for the receiving water as established in the San Diego Municipal Storm Water Permit and Water Quality Control Plan for the San Diego Basin (9). The Contractor's duty to indemnify and hold harmless shall not include any claims or liability arising from the established sole negligence or willful misconduct of the City, its agents, officers or employees.

- f) The Contractor shall implement BMP's in accordance with the California Storm Water Quality Association (CASQA) handbooks ([www.cabmphandbooks.org](http://www.cabmphandbooks.org)) and in accordance with the Small Linear Utility Permit for Construction Activities ([www.swrcb.ca.gov](http://www.swrcb.ca.gov)). It is the Contractor's responsibility on both active and inactive sites to implement BMP's for all potential pollutant discharges.

### **801-2.3 Dry Season Requirements (May 1 through September 30).**

- a) Perimeter protection BMP's shall be installed and maintained to comply with the performance standards listed in 801-2.2, "Performance Standards."
- b) Sediment control BMP's shall be installed and maintained to comply with the performance standards listed in 801-2.2, "Performance Standards."
- c) Sediment tracking control BMP's shall be installed and maintained at Site entrances and exits to comply with the performance standards listed in 801-2.2, "Performance Standards."
- d) Standby BMP materials necessary to protect the Site against erosion, to prevent sediment discharge, and to prevent non storm water discharges shall be stored on Site and readily accessible.
- e) The Contractor shall have an approved WTAP and have the ability to install standby BMP's to protect the Site to the MEP within 24 hours of prediction of a storm event defined as a forecasted, 40% or greater chance of rain. On request, the Contractor shall provide proof of this capability that is acceptable to the RE.
- f) The amount of exposed soil allowed at one time shall not exceed that which can be adequately protected by deploying standby erosion control and sediment control BMP's prior to a predicted storm event.

**801-2.4 Rainy Season Requirements (October 1 through April 30).** In addition to the requirements listed under the Dry Season Requirements, the following shall be required during the rainy season:

- a) Erosion control BMP's shall be adequate to the MEP to provide protection for storm events, during the rainy season.
- b) Perimeter protection and sediment control BMP's shall be adequate and to the MEP upgraded as necessary to provide sufficient protection for storms likely to occur during the rainy season.
- c) Physical or vegetation erosion control BMP's shall be installed and established for all completed construction areas prior to the start of the rainy season, and shall to comply with the performance standards listed in these specifications. These BMP's shall be maintained throughout the rainy season. If a BMP fails, it shall be repaired and improved, or replaced with an acceptable alternate as soon as safety allows it is safe to do so.

- d) A disturbed area that is not being actively graded or excavated for 7 or more consecutive days shall be fully protected from erosion. The weather triggered action plan shall apply to inactive areas.

**801-2.5 Construction BMP's.** It is the responsibility of the Contractor to select, install and maintain appropriate BMP's in accordance with these specifications. It is the Contractor's responsibility to ensure that the BMP's are operational and working properly. BMP's shall be installed in accordance with California Storm Water BMP handbooks ([www.cabmphandbooks.org](http://www.cabmphandbooks.org)) and in accordance with the State General Permit for storm water discharges associated with construction activity from small linear underground/overhead projects (<http://www.waterboards.ca.gov>).

All BMP measures shall be identified in the Tier II SWPPP. A cost breakdown for the lump sum BMP items shall be provided before the NTP is issued. The Contractor shall submit deviations or modifications to Engineer.

**801-2.6 Erosion Control.** The Contractor shall be responsible for selecting and maintaining erosion control BMP's for all construction activities for the duration of the Project. Erosion control BMP's shall include the materials and measures to prevent pollutant discharges to the MEP from occurring.

The payment for erosion control shall be included in the lump sum Bid item for Erosion Control.

**801-2.7 Sediment Control.** The Contractor shall be responsible for selecting and maintaining sediment control BMP's for the duration of the Project. Adequate sediment control is required for all construction activities that may generate pollutants. Sediment control BMP's shall include the materials and measures to prevent pollutant discharges to the MEP from occurring.

The payment for sediment control shall be included in the lump sum Bid item for Sediment Control.

**801-2.8 Storm Drain Inlet Protection.** The Contractor shall install and maintain Storm Drain Inlet Protection throughout construction and remove when project is completed and there is no longer a potential to discharge pollutants.

The Contractor shall be responsible for preventing any flooding associated with storm drain inlet protection. The area around the inlet shall allow water to pond without flooding the traveled way, structures and private property. Any BMP's temporarily removed by the Contractor to alleviate flooding shall be replaced or modified immediately as safety allows.

The storm drain inlet sediment control measures shall not impede the safe flow of traffic. The storm drain inlet sediment control measures shall be of sufficient weight so as not to shift out of place, or shall be secured in place against movement.

Inlet sediment control measures shall be maintained daily or more often as needed. Maintaining inlet sediment control measures shall include but not be limited to replacing damaged BMP's, removing and disposing of accumulated sediment, trash and debris. Waste



materials shall be removed and disposed of in accordance with 7-8, "WORK SITE MAINTENANCE."

The payment for storm drain inlet protection will be paid per unit price Bid item for Storm Drain Inlet Protection.

**801-2.9 Non-Storm Water and Materials Management BMP's.** The Tier II SWPPP shall include pollution control measures and associated locations for equipment maintenance, fueling, concrete washouts, cleaning and storage.

The Contractor shall avoid placing stock piles in any drainage path. The Engineer may approve temporary stockpiling in a drainage path provided that measures are taken to allow unimpeded drainage, and sediment transport is prevented. Regardless of the location of stockpiled materials, containment measures are to be employed to control dust and sediment movement arising from wind, rain, and/or runoff. Controlling measures include but are not limited to covering the stockpiled material and the installation of protection around the perimeter of the stockpiled material during rain events and winds.

The payment shall be included in the lump sum Bid item for Non-Stormwater and Materials Management BMP's.

**801-2.10 Street Sweeping.** The Contractor shall sweep the streets impacted by construction activities daily, and as often as needed, with a motor sweeper in accordance with 7-8, "WORK SITE MAINTENANCE." Blowers shall not be used on Site.

The payment for street sweeping shall be included in the lump sum Bid item for Street Sweeping.

**801-2.11 Weather Triggered Action Plan.** The Contractor shall prepare a written Weather Triggered Action Plan (WTAP) prior to the start of construction. The Contractor shall implement the WTAP within 24 hours of a predicted storm event (a predicted storm event is defined as a forecasted 40% or greater chance of rain). Rain forecasts can be found at [www.nws.noaa.gov](http://www.nws.noaa.gov). The WTAP shall identify the staffing responsible for implementing, monitoring and maintaining the BMP's prior to and during the storm event, and shall identify on site availability of BMP's that will be installed on the exposed portions of the Site to minimize erosion and sediment discharges, and prevent non-storm water discharges from leaving the Site to the MEP. The WTAP shall be filed in the SWPPP, WPCP, TIER I, or TIER II document and updated as Site conditions change.

The lump sum Bid item for the WTAP shall include the preparation and implementation of the WTAP for the duration of the Project.

**801-2.12 Inlet Markers.** The Contractor shall mark every storm drain inlet within the Project boundaries with adhesive decal-discs or an imbedded concrete stamp. The Contractor shall use decal-discs on existing inlets and concrete stamps on new inlets. The concrete stamp is available from the Engineer with five days advance notice. On curb inlets the concrete stamp or decal discs shall be placed on the top of curb at the inlet roof. On catch basins, the concrete stamp shall be imprinted next to the inlet grate.

The payment for inlet markers shall be included in the Bid item for Storm Drain Inlet Markers.

### WPCP VERSION

**801-2.1 Site Management.** The Contractor shall prepare a WPCP as required for all projects less than one acre in ground disturbance. The WPCP shall be submitted to the Engineer at the Preconstruction Meeting. The WPCP shall follow the requirements as outlined in Appendix E of the City Storm Water Standards Manual and shall be submitted prior to the start of construction activities. The WPCP shall be kept at the Site and made available at all times. The Contractor shall implement and update the WPCP when necessary, monitor the Site, and maintain BMP's in effective working condition.

The Contractor shall do the following:

- a) Designate a QCP that shall be responsible for the implementation, maintenance and improvement of the BMP's and WPCP. The QCP shall be trained and competent in the use of BMP's and shall be on Site daily to evaluate the conditions of the Site with respect to storm water pollution prevention.
  - a. The QCP shall be responsible for monitoring the weather and implementation of any emergency plans that shall be activated when there is a 40% or greater chance of rain. The weather shall be monitored with the National Weather Service at <http://www.nws.noaa.gov> on a 5-day forecast plan.
  - b. The QCP shall be responsible for overseeing any site grading and construction operations, and for evaluating the effectiveness of the BMP's. The QCP shall ensure the modification of the BMP's as necessary to keep the site in compliance and to ensure adequate, routine maintenance of the BMP's.
- b) Educate all Subcontractors and employees about storm water pollution prevention measures required during construction activities to prevent the impact of construction discharges to the storm water conveyance system. Education requirements shall be in accordance with §F.2.J of the San Diego Regional Water Quality Control Board (SDRWQCB) Order No. 2001-1, dated February 21, 2001. The Contractor shall ensure that all personnel are trained in basic storm water construction management. A log of the trained staff and the educational materials shall be kept in the WPCP file and available upon request by the Engineer.
- c) Protect all new and existing storm water conveyance systems from sedimentation, concrete rinse, or other construction related debris and discharges with the appropriate BMP's that are acceptable to the Engineer and as indicated in the WPCP.
- d) Indicate in the WPCP the locations of BMP's (i.e., concrete wash out, vehicle maintenance, staging and storage area protection, etc.) to be implemented. The Contractor shall ensure that these areas will be utilized properly and maintained regularly.

- e) The Contractor shall be responsible for ensuring that all waste and debris generated during the period of construction is contained within the storage and staging area or properly disposed. No sediment, oil, or contaminated run-off shall be allowed out of the storage and staging area. Perimeter and run-off control measures shall be installed around the storage and staging area. The entrance to the construction storage and staging area shall have stabilized gravel entrances/roadways, metal pans to loosen dirt from tires, or the like, to reduce tracking and create a sediment barrier between the storage and staging area and the roadway.
- f) Inspect and document monthly at a minimum or as directed by the Engineer, all BMP's during the dry season, May 1 through September 30. Inspect and document weekly, at a minimum or as directed by the Engineer, all BMP's during the rainy season October 1 through April 30. The Contractor shall include documentation in the WPCP that BMP's were inspected at the intervals required and shall update and maintain this documentation for the duration of the Project. The WPCP and the updates shall be available to the Engineer upon request.
- g) Conduct visual inspections daily and maintain all BMP's as needed. Visual Inspections and maintenance of all BMP's shall be conducted before, during and after every rain event and every 24 hours (at a minimum) during any prolonged rain event. The Contractor shall maintain and repair all BMP's as soon as possible as safety allows.
- h) Return the land areas disturbed during construction to the pre-construction or equivalent protection, at the end of each workday to eliminate or minimize erosion and the possibility for discharge of sediment or other pollutants during a rain event.
- i) If a non-storm water discharge leaves the Site, the Contractor shall immediately stop the activity and repair the damages. The Contractor shall immediately notify the Engineer of the discharge. As soon as practical, any and all waste material, sediment and debris from each non storm water discharge shall be removed from the storm drain conveyance system and properly disposed of by the Contractor at no cost to the City.

The payment for Water Pollution Control shall be included in the other Bid items unless specific Bid item(s) is (are) provided in the Bid.

**801-2.2 Performance Standards.** The Contractor shall be responsible for implementing all water pollution control measures based on performance standards. Performance standards shall include:

- a) Non-storm water discharges from the Site shall not occur to the MEP. All storm water discharges shall be free of pollutants including sediment to the MEP.
- b) Erosion shall be controlled by acceptable BMP's to the MEP. If rills and gullies appear they shall be repaired and additional BMP's installed to prevent a reoccurrence of erosion.

- c) An inactive site shall be protected to prevent pollutant discharges. A site or portions of a site shall be considered inactive when construction activities have ceased for a period of 7 or more consecutive days.

Good housekeeping BMP's shall be implemented and maintained at all times during construction. The Contractor is responsible for clean-up of debris, concrete waste, sweeping, and dust control. Construction debris and waste shall be contained and disposed of properly. Access locations shall be kept clean and swept daily or more often as needed to assure no sediment leaves the construction site. The surrounding public streets shall be kept clean and swept daily and as needed to keep sediment out of the storm drain conveyance system.

The Contractor shall defend, indemnify, protect, and hold harmless the City, its agents, officers, and employees, from and against all claims asserted, or liability established for damages, obligations, penalties, fines, actions (including remedial or enforcement actions of any kind and administrative or judicial proceedings, orders, or judgments), and costs resulting from any violations, failure to implement, maintain, or follow Best Management Practices, and/or losses arising out of or resulting from discharge of storm water containing sediment or other pollutants from the Project to the waters of the City's Storm Water Conveyance System, State or United States in quantities or concentrations exceeding those which would have occurred in the pre-construction condition of the Project and/or the discharge of any other contaminants in storm water that cause or contribute to the excess of a water quality objective for the receiving water as established in the San Diego Municipal Storm Water Permit and Water Quality Control Plan for the San Diego Basin (9). The Contractor's duty to indemnify and hold harmless shall not include any claims or liability arising from the established sole negligence or willful misconduct of the City, its agents, officers or employees.

The Contractor shall implement BMP's in accordance with the California Storm Water Quality Association (CASQA) handbooks ([www.cabmphandbooks.org](http://www.cabmphandbooks.org)) and in accordance with the California General Permit for Construction Activities ([www.swrcb.ca.gov](http://www.swrcb.ca.gov)). It is the Contractor's responsibility on both active and inactive sites to implement BMP's for all potential pollutant discharges.

### **801-2.3 Dry Season Requirements (May 1 through September 30).**

- a) Perimeter protection BMP's shall be installed and maintained to comply with the performance standards listed in 801-2.2, "Performance Standards."
- b) Sediment control BMP's shall be installed and maintained to comply with the performance standards listed in 801-2.2, "Performance Standards."
- c) Sediment tracking control BMP's shall be installed and maintained at Site entrances and exits to comply with the performance standards listed in 801-2.2, "Performance Standards."

- d) Standby BMP materials necessary to protect the Site against erosion, to prevent sediment discharge, and to prevent non storm water discharges shall be stored on Site and readily accessible.
- e) The Contractor shall have an approved WTAP and have the ability to install standby BMP's to protect the Site to the MEP within 24 hours of prediction of a storm event defined as a forecasted, 40% or greater chance of rain. On request, the Contractor shall provide proof of this capability that is acceptable to the RE.
- f) The amount of exposed soil allowed at one time shall not exceed that which can be adequately protected by deploying standby erosion control and sediment control BMP's prior to a predicted storm event.

**801-2.4 Rainy Season Requirements (October 1 through April 30).** In addition to the requirements listed under the Dry Season Requirements, the following shall be required during the rainy season:

- a) Erosion control BMP's shall be adequate to the MEP to provide protection for storm events, during the rainy season.
- b) Perimeter protection and sediment control BMP's shall be adequate and to the MEP upgraded as necessary to provide sufficient protection for storms likely to occur during the rainy season.
- c) Physical or vegetation erosion control BMP's shall be installed and established for all completed construction areas prior to the start of the rainy season, and shall comply with the performance standards listed in these specifications. These BMP's shall be maintained throughout the rainy season. If a BMP fails, it shall be repaired and improved, or replaced with an acceptable alternate as soon as safety allows.
- d) A disturbed area that is not being actively graded or excavated for 7 or more consecutive days shall be fully protected from erosion. The weather triggered action plan shall apply to inactive areas.

**801-2.5 Construction BMP's.** It is the responsibility of the Contractor to select, install and maintain appropriate BMP's in accordance with these specifications. It is the Contractor's responsibility to ensure that the BMP's are operational and working properly. BMP's shall be installed in accordance with California Storm Water BMP handbooks ([www.cabmphandbooks.org](http://www.cabmphandbooks.org)) and in accordance with the California General Permit for Construction Activities ([www.swrcb.ca.gov](http://www.swrcb.ca.gov)).

All BMP measures shall be identified in the WPCP. A cost breakdown for the lump sum BMP items shall be provided before the NTP is issued. The Contractor shall submit deviations or modifications to Engineer.

**801-2.6 Erosion Control.** The Contractor shall be responsible for selecting and maintaining erosion control BMP's for all construction activities for the duration of the Project. Erosion control BMP's shall include the materials and measures to prevent pollutant discharges to the MEP from occurring.

The payment for erosion control shall be included in the Bid item for Erosion Control.

**801-2.7 Sediment Control.** Adequate sediment control is required for all construction activities that may generate pollutants. The Contractor shall be responsible for selecting and maintaining sediment control BMP's for the duration of the Project. Sediment control BMP's shall include the materials and measures to prevent pollutant discharges to the MEP from occurring.

The payment for sediment control shall be included in the Bid item for Sediment Control.

**801-2.8 Storm Drain Inlet Protection.** Storm drain inlet protection shall be installed and maintained throughout construction and removed when project is completed and there is no longer a potential to discharge pollutants.

The Contractor shall be responsible for preventing any flooding associated with storm drain inlet protection. The area around the inlet shall allow water to pond without flooding the traveled way, structures and private property. Any BMP's temporarily removed by the Contractor to alleviate flooding shall be replaced or modified immediately as safety allows.

The storm drain inlet sediment control measures shall not impede the safe flow of traffic. The storm drain inlet sediment control measures shall be of sufficient weight so as not to shift out of place, or shall be secured in place against movement.

Inlet sediment control measures shall be maintained daily or more often as needed. Maintaining inlet sediment control measures shall include but not be limited to replacing damaged BMP's, removing and disposing of accumulated sediment, trash, and debris. Waste materials shall be removed and disposed of in accordance with 7-8, "WORK SITE MAINTENANCE."

The payment for storm drain inlet protection shall be included in the unit price Bid item for Storm Drain Inlet Protection.

**801-2.9 Non-Storm Water and Materials Management BMP'S.** The WPCP shall include pollution control measures and associated locations for equipment maintenance, fueling, concrete washouts, cleaning and storage.

The Contractor shall avoid placing stock piles in any drainage path. The Engineer may approve temporary stockpiling in a drainage path provided that measures are taken to allow unimpeded drainage, and sediment transport is prevented. Regardless of the location of stockpiled materials, containment measures are to be employed to control dust and sediment movement arising from wind, rain, and/or runoff. Controlling measures include but are not limited to covering the stockpiled material and the installation of protection around the perimeter of the stockpiled material during rain events and winds.

The payment shall be included in the Bid item for Non-Stormwater and Materials BMP's.

**801-2.10 Street Sweeping.** The Contractor shall sweep the streets impacted by construction activities daily, and as often as needed, with a motor sweeper in accordance with 7-8, "WORK SITE MAINTENANCE." Blowers shall not be used on Site.

The lump sum price for street sweeping shall cover all street sweeping, equipment, labor, and related activities.

**801-2.11 Weather Triggered Action Plan.** The Contractor shall prepare a written Weather Triggered Action Plan (WTAP) prior to the start of construction. The Contractor shall implement the WTAP within 24 hours of a predicted storm event (a predicted storm event is defined as a forecasted 40% or greater chance of rain). Rain forecasts can be found at [www.nws.noaa.gov](http://www.nws.noaa.gov). The WTAP shall identify the staffing responsible for implementing, monitoring and maintaining the BMP's prior to and during the storm event, and shall identify on site availability of BMP's that will be installed on the exposed portions of the Site to minimize erosion and sediment discharges, and prevent non-storm water discharges from leaving the Site to the MEP. The WTAP shall be filed in the SWPPP, WPCP, TIER I, or TIER II document and updated as Site conditions change.

The payment for the preparation and implementation of the WTAP shall be included in the lump sum Bid item for WTAP for the duration of the Project.

**801-2.12 Inlet Markers.** Mark every storm drain inlet within the projects boundaries with adhesive decal-discs or an imbedded concrete stamp. The Contractor shall use decal-discs on existing inlets and concrete stamps on new inlets. The concrete stamp is available from the Engineer with five days advance notice. On curb inlets the concrete stamp or decal discs shall be placed on the top of curb at the inlet roof. On catch basins, the concrete stamp shall be imprinted next to the inlet grate.

The payment for the inlet markers shall be included in the Bid item for the Storm Drain Inlet Markers.

### SECTION 802 – CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

**802-1 General.** This section specifies reuse and recycling of Construction and Demolition (C&D) waste. The Contractor is required to comply with Municipal Code 66.0601–66.0610, the Construction and Demolition Debris Diversion Deposit Program and these specifications.

The minimum Waste Management Goal is 90% of the inert material (a material not subject to decomposition such as concrete, asphalt, brick, rock, block, dirt, metal, glass, etc.) and 50% of the remaining project waste.

The Contractor shall provide appropriate documentation, including a Waste Management Plan (WMP) and evidence of recycling and reuse of materials.

**802-1.2 Submittals.** The Contractor shall submit the following in accordance with 2-5.3, "Submittals":

- a) A WMP on the City provided form to indicate how construction waste will be recycled. Plan shall include procedures and schedule for debris disposal. Submittal of this form is required after the Award and prior to NTP. The WMP shall specify the



percentages of construction debris that will be recycled. The plan shall include the following:

- i. How the Contractor proposes to recover at least 90% of the inert material and 50% of the remaining wastes for reuse and recycling. Inert materials shall be source-separated to facilitate recycling. If space is limited or non-existing on-site for source separation, the City will evaluate the diversion goals after a review of the Contractor's WMP.
- ii. Means and methods for collecting and separating each type of debris that is reusable or recyclable.
- iii. Identification of hauler of each designated debris item and the off-site recycling service (i.e., company name, telephone number, address, and contact person) that has agreed to accept the waste for the purpose of diversion from landfill.
- iv. Specify in the WPM work areas and materials processing areas and storage.

The Contractor shall be responsible for implementation of the WMP and meeting the diversion goals.

- b) Documentation from the recycling services that are not listed in the City Construction, Demolition, and Yard Waste Recycling Guide (available from City website) as follows:
  - i. Identifying where the construction and demolition material is taken.
  - ii. The method or process used to recycle the waste material.
  - iii. Identification of applicable state and local permits held by the recycling service provider and recycling facility.
  - iv. The City provided from (i.e., ESD Waste Mitigation Summary for C&D) at 50% progress payment and at completion of the Work.
- c) A "good faith" estimate of each type of construction waste that would be generated. Submit calculations based upon weight of each. The following items are subject to the "good faith" estimate and diversion requirement and may or may not be recyclable depending on market conditions:
  - i. Asphalt and Concrete
  - ii. Brick/Masonry/Tiles
  - iii. Building Materials (e.g., doors, windows, fixtures, etc.)
  - iv. Cardboard and other paper products
  - v. Carpet/Carpet Padding/Foam
  - vi. Ceiling Tiles (e.g., acoustic)
  - vii. Drywall

- viii. Electrical Components (e.g., light fixtures, cables, etc.)
  - ix. Film Plastic and Styrofoam Blocks
  - x. Landscape Debris (e.g., plant & tree trimmings)
  - xi. Mechanical Debris (e.g., ducts, controls, plumbing fixtures, etc.)
  - xii. Scrap Metal
  - xiii. Unpainted Wood and Pallets
  - xiv. Other (e.g., painted wood and drywall, roofing, etc.)
  - xv. Mixed C&D (i.e., a mixture of three or more materials from construction or demolition sites that will be taken to a “qualified” facility for recycling.)
  - xvi. Trash and Garbage
- d) C&D Waste Management Summary Reports. The Contractor shall submit the delivery receipts for the recycled and waste materials sent to the permitted recycling facilities, processing facilities, or landfill with the following information:
- i. Name of firm accepting the recovered materials or waste materials.
  - ii. Specify type of facility (e.g., retail facility, recycler, processor, Class III landfill, MRF)
  - iii. Location of the facility.
  - iv. Type of materials.
  - v. Net weights (or volume) of each type of material.
  - vi. Date of delivery.
  - vii. Value of the materials or tipping fee paid.
  - viii. The Contractor shall submit the C&D Waste Management Summary Report with each progress payment.

### **802-1.4 Recycling Program.**

**802-1.4.1 Common Waste Diversion Strategy.** The recycling program shall utilize one or a combination of any of the following common waste diversion strategies:

- a) Source separation.
- b) Time-based separation.
- c) Commingled or off-site separation.
- d) Back haul of packaging.
- e) On-site sales auctions and removal.

- f) Deconstruction (a process whereby an existing structure is demolished, removed, or taken down with the main objective being the recovery of the existing building materials for further reuse.).
- g) On-site processing, reuse, or both.

**802-1.4.2 Management Hierarchy.** Waste Material management hierarchy shall be as follows:

- a) reuse on-site,
- b) recycle on-site,
- c) reuse off-site, and
- d) recycle off-site.

**802-1.4.3 Alternative Approach.** The Contractor is encouraged to use any other innovative approaches in order to meet and exceed the minimum diversion goals in accordance with the C&D Waste Management Plan.

**802-1.5 Disposal Site, Recyclers, and Waste Materials Processors.** The Contractor shall use only facilities properly permitted by the State, County of San Diego, or local authorities where applicable.

**802-1.6 C&D Waste Management Presentation.** As part of the pre-construction meeting, the Contractor shall review and present the WMP. The Contractor shall discuss and coordinate procedures, schedules and specific requirements for waste materials recycling and disposal. The Contractor shall identify potential compliance problems and matters requiring further resolution. C&D Waste Management shall be agenda item at all future construction meetings. The Contractor shall make the agreed upon revisions to the proposed WMP subsequent to the meeting and submit the revised plan to Engineer for acceptance.

**802-1.7 Implementation.** The Contractor shall do the following:

- a) Designate an on-site party responsible for instructing workers and implementing the WMP.
- b) Distribute copies of WMP to Site supervisor and each Subcontractor.
- c) Include waste management and recycling in worker orientation.
- d) Provide on-site instruction on appropriate separation, handling, recycling, and recovery methods to be used by all parties at the appropriate stages of the Work at the Site.
- e) Include discussion of waste management and recycling in regular job meetings and job safety meetings conducted during the course of Work at the Site.
- f) Notify the appropriate governmental entities of the Work.

- g) Remove and relocate reusable materials to be reinstalled or retained in a manner to prevent damage or contamination.
- h) Conduct construction and demolition in such a manner to minimize damage to trees, plants and natural landscape environment.
- i) Arrange for adequate collection, transportation, and delivery of the recovered materials to the approved recycling center or processing facility.
- j) Maintain records accessible to the Engineer for verification of the diversion of the recovered waste materials.

**802-1.8 Storage and Handling.** The Contractor shall do the following:

- a) Provide separate containers for different types of materials (if Site conditions warrant).
- b) Label each container with signs, instructions, and a list of all acceptable materials. The information shall be in multiple languages and in graphic symbols.
- c) Remove all materials for recycling and recovery from the work locations to approved containers. Failure to remove waste or recovered materials may be considered cause for withholding payment.
- d) Place containers for recyclable and recoverable materials at designated location on the Site. If materials are sorted on Site, the Contractor shall provide a sorting area and necessary storage containers.
- e) Change-out loaded containers for empty containers, as demand requires.
- f) Provide adequate security from pilferage if recovered materials are stored on-site for Project duration.
- g) Deposit indicated recyclable and recoverable materials in storage areas or containers in a clean (no mud, adhesive, solvents, petroleum contamination), debris-free condition. The Contractor shall not deposit contaminated materials into the containers unless the materials have been cleaned.
- h) Ensure all recovered materials are safe for handling and storage.
- i) Prevent any chemical contaminant combines with recyclable material so that it cannot be cleaned. In such case, the Contractor shall not deposit the material into the recycle containers. Contaminated materials shall be handled in accordance with 7-10.7 "Encountering or Releasing Hazardous Substances" and 7-10.8 "Encountering Contaminated Soil."

**802-1.9 Payment.** Payment for construction and demolition waste management shall be included in the following Bid items:

- a) Preparation of WMP & Reporting (LS)
- b) Site Storage and Handling of C&D Waste (Ton)

### c) Transportation and Disposal of C&D Waste (Ton)

The payment shall be included in various Bid items if no Bid item(s) have been provided for C&D Waste Management.

Final Payment will be withheld until such time as the Contractor adequately demonstrates the final disposition; either diverted or disposed, of materials generated by the Project. Final status report is required before the Final Payment.

### **SECTION 803 – ENCOUNTERING OR RELEASING HAZARDOUS SUBSTANCES**

**803-1 GENERAL.** If the Contractor encounters, causes the release of, or has knowledge of a release or an imminent release of hazardous substances, Work in the area shall immediately cease except in an emergency. Any substance which is toxic, corrosive, an irritant, a strong sensitizer, flammable, combustible, or radioactive or may cause substantial personal injury or substantial illness as a proximate result of any customary or reasonable foreseeable handling or use is considered a hazardous substance. The Contractor shall immediately notify the Engineer and County of San Diego, Department of Environmental Health (DEH) at (619) 338-2222 (during business hours) or by calling 911 (outside business hours). If there is an immediate fire, explosion, health or safety threat, the Contractor shall notify the Fire Department via 911.

A waste determination shall be performed on all potential hazardous waste or regulated waste generated at a Site within 10 days of generation to determine if it meets hazardous waste criteria in accordance with 22 CCR Division 4.5 or any other pertinent law or regulation which could restrict the disposal of the waste to a municipal landfill, sewer discharge, or storm drain discharge. The results of all waste determinations shall be submitted to the City for concurrence prior to any disposal or discharge of the waste in question.

Incomplete or inconclusive waste determinations conducted by the Contractor, as determined by the City, will be returned to the Contractor for additional information or testing. The City's approval of the final determination of the waste and the disposal or discharge location shall be required.

Substances requiring analytical testing shall be sampled and tested in accordance with the sampling and analytical testing requirements in these specifications.

The Contractor shall not be required to resume work in any such affected area until after the City has delivered to the Contractor written notice specifying that such condition and any affected area has been rendered safe for the resumption of Work, or specifying any special conditions under which Work may be resumed safely.

If there is a health and safety plan for this specific site or Project, it shall be followed precisely. The Contractor shall follow and comply with all applicable Federal, State, and local laws and regulations and notification requirements.

**803-2 CITY RESPONSIBILITY.** The City will be responsible for any hazardous substances and hazardous waste as defined by §§25316 and 25117 of the California Health and Safety Code, uncovered or revealed at the Site which existed prior to the date of the NTP and was not identified in the Contract Documents to be within the scope of the Work. The City shall not be responsible for any such materials brought to the Site after the NTP.

**803-3 DEFINITIONS.** For the purpose of these specifications the following definitions apply:

**Closed Container** - a container is closed when the lid, ring, gaskets, and bung are latched, screwed, and tightened in such a way that the contents, including vapors, are confined within the space of the container.

**Empty Hazardous Materials Containers** – a container which previously held a hazardous material is considered empty when: i) the container, when it is held in any orientation (e.g. inverted, tilted, etc.) and no liquid drains from the container, ii) all of the solids have been removed by a physical method so that no more than a thin uniform film remains in the container. All empty hazardous material containers are hazardous waste unless managed in accordance with 22 CCR 66261.7.

**Hazardous Material** - a material which may cause harm to humans, animals, or the environment as defined by HSC 25501 (o) and implemented in HSC Chapter 6.5 and 22 CCR. Hazardous Materials include but are not limited to products labeled: Danger, Warning, Caution, Corrosive, Flammable, Toxic, Poison.

**Hazardous Substance** - a hazardous material, hazardous waste, or any chemical product which a manufacturer or producer is required to prepare an MSDS or as defined by HSC 25501(p).

**Hazardous Waste** - A hazardous material that can no longer be used for its intended purpose as defined in HSC 25115, HSC 25117, and HSC 25316 and implemented in HSC Chapter 6.5 and 22 CCR. Hazardous waste includes but is not limited to hazardous materials that can be recycled to include used lubricating oils and Universal Waste to include consumer batteries, mercury containing items, lighting devices/bulbs/tubes, and electronics.

**Hazardous Waste Determination** - the process which shall be used to determine if a waste is hazardous or non-hazardous as required in 22 CCR.

**Hazardous Waste Manifest** - the state and federal approved shipping document required by law to track the transportation and disposal of hazardous waste. The document is originated and signed by the generator of the waste in accordance with 22 CCR.

**MSDS** - Material Safety Data Sheet Release - any spilling, leaking, pumping, pouring, emitting, emptying, discharging, dumping, injecting, escaping, leaching, or disposing into the environment as defined by HSC 25501 (s), 19 CCR, 40 CFR 302, and any other applicable regulatory definition.

**Regulated Waste** – a waste that, due to its chemical or physical properties, is restricted in its disposal to a municipal Class III landfill or discharge to a sewer or storm drain.

**Release Regulatory Reporting** – upon discovery, a release or threatened release is immediately reported to the Governor’s Office of Emergency Services, the County of San Diego’s Department of Environmental Health, National Response Center (when applicable), and any other appropriate regulatory or oversight agency as required in accordance with the state and federal regulations.

**Spill** - Refer to the definition of Release and Threatened Release

**Threatened Release** – a condition creating a substantial probability of harm, when the probability and potential extent of harm make it reasonably necessary to take immediate action to prevent, reduce, or mitigate damages to persons, property, or the environment.

**TEEM** - Tank Engineering and Environmental Management

**TSDF** - a hazardous waste transfer, treatment, storage, or disposal facility which has received a permit, a grant of interim status, or a variance or is otherwise authorized by law to receive specific hazardous wastes for processing.

**Universal Waste** - Hazardous wastes that contain mercury, lead, cadmium, copper, and other substances hazardous to human and environmental health.

**803-4 HAZARDOUS SUBSTANCES MANAGEMENT PLAN.** For general management of hazardous materials at the Site the Contractor shall submit a Hazardous Substances Management Plan in accordance with 2-5.3, “Submittals” subject to the following regulations prior to start of the Work:

- a) 49 Code of Federal Regulations (49 CFR)
- b) 40 Code of Federal Regulations (40 CFR)
- c) California Code of Regulations, Title 22 (22 CCR)
- d) California Code of Regulations, Title 19 (19 CCR)
- e) California Health and Safety Code, Chapter 6.5 (HSC)
- f) Uniform Fire Code (UFC)

The Contractor’s submittal shall describe how the Contractor will store, manage, and inspect all hazardous materials brought to the Site including the management of all containers, drums, and tanks. The submittal shall include a listing of all hazardous wastes anticipated to be generated or encountered during the course of the Project and the name of the trained hazardous waste contractor(s) who will perform the removal, storage, transportation, and disposal activities for each waste type listed.

For each hazardous waste type listed, the Contractor shall provide the following information (an example format is provided in Example A below):

- a) Name of hazardous waste
- b) Disposal Method (recycling, alternative fuel, incineration, treatment, Class I Landfill)



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- c) Name of licensed hazardous waste transporter(s) for each waste type
- d) Name of Treatment, Storage, and Disposal Facility (TSDF) where the waste will be treated and/or disposed. Include the name(s) of each additional TSDF's or other interim facility where the waste may be stored or treated prior to shipping to the final disposal facility.

Example A - Hazardous Waste Disposal Information Submittal

Waste Stream	Disposal Method	Transporter 1	Transporter 2	TSDF 1	TSDF 2
HazWaste #1	Treatment	ABC Transport	None	Acme Neutralization	None
HazWaste #2	Recycle	ABC Transport	HazMat Hauler	Smith Recyclers	None
HazWaste #3	Incinerate	XYZ Transport	HazMat Hauler	ABC Transfer Station	Acme Incineration

The submitted plan shall provide the following information for each hazardous waste transporter and TSDF listed in the Hazardous Waste Disposal Information Submittal.

- a) Name, address, phone number, company contact, EPA identification number, and copy of a valid insurance certificate which includes a minimum of \$1 million in environmental pollution liability insurance for each licensed hazardous waste transporter used
- b) Name, address, phone number, company contact, EPA identification number, and copy of a valid insurance certificate which includes a minimum of \$1 million in environmental pollution liability insurance certificate for each TSDF used.

Laboratory testing (if required), provide the following:

- a) Name, address, phone number, company contact, and certification number for each certified hazardous waste testing laboratory used
- b) A list of the tests each laboratory is certified to perform under the laboratory's State certification.

After start of the Work the following submittals shall be made by the Contractor:

- a) Weekly: Hazardous Waste Storage Logs
- b) Periodically During Work: Chemical Release Spill Report Forms (as necessary)
- c) Hazardous Waste Disposal and Laboratory Testing (as needed)
- d) Draft hazardous waste manifests for approval (submitted prior to scheduling

disposal)

- e) Two legible copies of each hazardous waste manifest used\*
- f) Copies of all other disposal receipts and documentation (i.e. Bills of Lading)\*
- g) Copies of analytical test data (submitted within 1 day of receipt from laboratory)
- h) Copies of weekly hazardous waste logs (submitted weekly)
- i) Approved waste profiles (submitted prior scheduling to disposal)

Notes:

\*Shall be submitted immediately after receipt from transporter.

**803-5 EMPLOYEE TRAINING.** The Contractor's employees and Subcontractors who manage hazardous waste shall be trained to ensure compliance with all regulations. The Contractor's employees and Subcontractors working at the Site shall be able to respond effectively to emergency situations including chemical releases (22 CCR 66265.16).

**803-6 SAMPLING AND ANALYTICAL TESTING REQUIREMENTS.** A suspect item or waste that may be hazardous or contain a hazardous or regulated component shall be separated from other waste for the City's determination if a Waste Characterization is needed or if the suspect item or waste had been identified in the contract.

Each testing method shall be approved by the City as appropriate for the sample being tested prior to having a certified laboratory conduct the test.

Representative samples shall be obtained for each waste to be tested with the sampling procedure pre-approved by the City.

The City shall be contacted prior to sampling and be present to observe the sampling. Items sampled without the presence or approval of the City may require the item or waste to be re-sampled.

Containers (e.g., jars, bags, etc.) used for sampling shall be certified by a State licensed Hazardous Waste Laboratory as "pre-cleaned." Samples shall be sent to a State licensed Hazardous Waste Laboratory for testing. The Laboratory shall have a valid State license for each requested test to be conducted on the sample. The sample testing time and preliminary results shall be available on the 5th Working Day after the sample was taken.

A final copy of all analytical test results and the sampling chain-of-custody form shall be provided to the City within 1 Working Day of receipt from the State hazardous waste certified testing laboratory.

**803-7 HAZARDOUS MATERIALS AND WASTES STORAGE AND MANAGEMENT.**

- a) Hazardous substances, hazardous wastes, or items, and equipment containing hazardous substances or hazardous wastes shall be handled in such a way as to minimize the possibility of a release.

- b) Hazardous substances shall always be kept in an approved, compatible, and closed container with a legible label identifying the contents. No interim containers including such as bags, transfer containers, buckets, or pails shall be acceptable.
- c) Containers used to package hazardous waste shall be compatible with the waste (22 CCR 66265.172), maintained in good condition (22 CCR 66265.171), and kept closed unless adding or removing waste (22 CCR 66265.173).
- d) Different waste types shall be stored in separate containers and incompatible wastes shall never be combined or stored near each other.
- e) Any packaging used to store and or transport hazardous waste off-site such as a container, roll-off bin, tank or other device, shall comply with 49 CFR Parts 173, 178, 179 and be labeled and prepared for transportation in accordance with 22 CCR Article 3.
- f) A hazardous waste label shall be affixed to the container and filled out when the first amount of hazardous waste or hazardous substance is placed in the container. The label shall include the generator information, contents of the container, physical state and hazardous properties of the waste, and the initial accumulation date. The Contract appendices contain a sample hazardous waste label.
- g) The Contractor shall use a numbering system to identify each hazardous waste container. Each hazardous waste container shall be marked with an identification number specific to that individual container.
- h) Additional pre-transportation labeling and marking or using placards shall be conducted prior to transporting hazardous waste off-site and in accordance with 22 CCR Chapter 12, Article 3 and 49 CFR.
- i) Containers, containment systems, and tanks of hazardous materials and hazardous waste shall be managed in a way which minimizes the threat of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste to the air, soil, or surface water which could threaten human health or the environment (22 CCR 66265.31).
- j) Secondary containment shall be provided at a minimum for storage areas containing 55 gallons or more of hazardous material or hazardous waste. The secondary containment area shall be capable of holding the contents of the largest container plus 10% of that volume or in accordance with applicable regulations (22 CCR 66264.175).
- k) Secondary containment areas shall be maintained so any releases will be confined within the secondary containment area. Rips, tears, cracks, breaks, etc. that compromise the integrity of the secondary containment shall be immediately repaired.
- l) Secondary containment systems shall be maintained free of dirt, debris or liquids. If any chemical is released into the secondary containment system, it shall be

removed immediately.

- m) Material used in or around the secondary containment area which has been contaminated with a hazardous material or hazardous waste shall not be disposed until a hazardous waste determination has been performed in accordance with these specifications. Contaminated materials include, but are not limited to, plastic sheeting, absorbents, dirt, sand, and kitty litter. Contaminated materials found in or around containment areas shall be immediately cleaned-up.
- n) The Contractor shall perform weekly inspections of their hazardous material and hazardous waste storage areas to comply with the regulations (22 CCR 66265.174). An inventory of hazardous waste containers will be kept noting each waste container and its accumulation start date. Inspections shall be documented and copies provided to the City upon request.

**803-8 HAZARDOUS WASTE ACCUMULATION TIME.** Each container of hazardous waste shall be shipped off-site for disposal by a registered hazardous waste transporter within 90 days of the date of initial generation or by the end of the Project, whichever comes first.

**803-9 TRANSPORTATION REQUIREMENTS.** The City will provide the Contractor with the EPA Generator Identification number for the Site. This number is site specific and shall only be used on hazardous waste disposal documentation for the appropriate site where the waste was generated.

A hazardous waste manifest or, when appropriate, a bill of lading, non-hazardous waste manifest or other appropriate disposal documentation shall be completed in accordance with 22 CCR Chapter 12, Article 2 and 49 CFR for any shipment of hazardous waste leaving the Site.

The Engineer or other designated City representative will sign the hazardous waste manifest or disposal documentation as representing the hazardous waste generator at the time the hazardous waste is being removed from the Site. Pre-signed hazardous waste manifests or bills of lading are not acceptable.

The Contractor shall only ship hazardous waste using a City pre-approved licensed hazardous waste transporter with a valid insurance certificate showing a minimum of \$1,000,000 Environmental Pollution Liability insurance unless specified otherwise in 7-3, "Liability Insurance." The hazardous waste shall be sent only to a City pre-approved treatment, storage, and disposal facility (TSDF) in accordance with 22 CCR Chapter 13. Any contractor who allows the transportation or disposal of hazardous waste from a City site by an unlicensed hazardous waste transporter, upon conviction, shall be subject to 1 year in prison and fined up to \$100,000 per day (HSC 25163, 25189.5).

**803-10 MANAGEMENT OF SPECIFIED WASTES.** The hazardous material that is removed from empty hazardous materials containers shall be used as hazardous material or disposed of as a hazardous waste. The Contractor shall mark each container with the date it was emptied and manage the container within one year by one of the following methods:

- a) Reclaim the scrap value of the container;
- b) send the container off-site for reconditioning or remanufacturing;
- c) send the container back to the manufacturer; and
- d) dispose of as hazardous waste.

For containers 5 gallons capacity or less, once the container is empty, it may be disposed of to the regular trash.

Aerosol spray containers may be disposed of in the regular trash if the contents and propellant have been emptied to the maximum extent practical under normal use (i.e., the spray mechanism was not defective and thus allowed complete discharge of the contents and propellant). Aerosol spray containers shall not be punctured, crushed or altered in order to remove or release any remaining contents or propellant for the purpose of emptying the container for disposal to the trash.

A compressed gas cylinder is empty when the pressure in the container approaches atmospheric pressure.

### **803-11 REGULATORY REPORTING FOR CHEMICAL RELEASE OR THREATENED RELEASE.**

Chemical releases or threatened releases involving a gas, liquid or solid hazardous materials or hazardous waste shall be immediately assessed utilizing the County Department of Environmental Health's Assessment form as a guide to determine if the incident requires regulatory reporting to the Governor's Office of Emergency Services, County Department of Environmental Health, Hazardous Materials Division, the National Response Center and any other pertinent regulatory agency. See the Contract appendices for a copy of County Department of Environmental Health's Assessment form.

Lack of timely reporting a chemical release or threatened release shall be subject to fines and penalties by the County of San Diego and any other pertinent regulatory agency.

Chemical releases or threatened releases involving a gas, liquid or solid hazardous materials or hazardous waste shall be immediately reported to the City.

Chemical releases and any contaminated media (rags, absorbents, soil, etc.) shall be immediately contained, cleaned up, and handled as hazardous waste at the Contractor's expense. The waste shall be handled as hazardous waste unless a complete hazardous waste determination, as approved by the City, is performed indicating the waste to be non-hazardous.

A Chemical Release Report Form or similar document shall be completed and faxed to the City at the designated number within 4 hours of the occurrence of the chemical release for all incidents of hazardous materials or hazardous wastes in quantities equal to or exceeding 5 gallons in quantity or for any size release that required regulatory reporting as determined by the County Department of Environmental Health's Assessment form. The Contract appendices contain a blank Chemical Release Report Form.

**803-12 PAYMENT.** Payment for construction and demolition waste management shall be included in the following Bid items:

- a) Preparation of Hazardous Waste Management Plan and Reporting (LS)
- b) Testing, Sampling, Site Storage, and Handling of Hazardous Waste (Ton)
- c) Transportation and Disposal of Hazardous Waste (Ton)

The payment shall be included in various Bid items if no Bid item(s) have been provided for management of Hazardous Materials in accordance with Section 803, "ENCOUNTERING OR RELEASING HAZARDOUS SUBSTANCES" and these specifications.

Shorter testing time and availability of preliminary results may be required by the Engineer and paid as Extra Work.

### SECTION 804 – CONTAMINATED SOIL

**804-1 ENCOUNTERING CONTAMINATED SOIL.** Contaminated soils are soil contaminants as defined in Chapter 18, Division 4.5, Title 22 of the California Code Regulations.

When encountering petroleum contaminated soil, abandoned underground storage tanks, petroleum transmission pipelines, or unidentified contamination, the Contractor shall follow the guidelines of the current edition of the County of San Diego, Department of Environmental Health (DEH) Site Assessment and Mitigation Manual (SAM Manual), which is available by contacting the DEH at (619) 338-2222.

The Contractor shall immediately notify the Engineer when apparent contaminated soils are encountered. Following notice by the Contractor, the Engineer will contact the City's Environmental Services Department, Office of Environmental Protection and Sustainability, Tank Engineering and Environmental Management (TEEM) Program at (858) 627-3311.

**804-1.1 Monitoring of Potentially Contaminated Soil.** Monitoring for the presence of petroleum contamination shall be the Contractor's responsibility and shall be performed in areas of known or suspected contamination during construction activities. Any contaminated soil encountered will be tested by the TEEM Program at no cost to the Contractor. The Contractor shall notify the Engineer 5 days prior to excavation in areas of known contamination, and immediately if suspected or unforeseen contamination is encountered.

An operational explosimeter (Combustible Gas Indicator - CGI), calibrated for and capable of automatically detecting explosive gases at 20% of the Lower Explosive Limit (LEL) shall be used by the Contractor. The functional requirements of the CGI shall comply with the Site Assessment and Mitigation (SAM) Manual. If 20% or greater of the Lower Explosive Limit (LEL) is detected in an excavation, surface area or confined space, the Fire Department and the DEH shall be notified immediately. The Contractor will not be reimbursed for costs associated with monitoring activities as the City considers these efforts to be integral and

essential to best management health and safety practices for trenching and excavation operations.

If there is no Bid item, payment shall be included in other items of Work.

**804-1.2 Stockpiling Contaminated Soil.** Unless directed otherwise by the Engineer, the Contractor shall stockpile all visually inspected soil, which is believed to be contaminated soil, at a location approved by the Engineer and the TEEM Program and in accordance to the following procedure. Stockpiled contaminated soil and/or hazardous waste shall be:

- a) Placed on a relatively impervious surface such as asphalt, concrete or on minimum 8-mil thick polyethylene sheeting.
- b) Moistened to minimize dust emissions during stockpiling. However, no run-off shall be permitted at any time.
- c) Securely covered by 8-mil polyethylene sheeting to minimize vapor emissions and prevent run-off from rain (sheeting shall be maintained and remain in satisfactory condition),
- d) Configured in such a manner that surface water run-off from the stockpile does not carry soil, leachate, or both beyond the stockpile perimeter berm,
- e) Separated from uncontaminated soil.

The Contractor will be responsible for loading stockpiled soil for transport and disposal following characterization of the soil by the City's TEEM Program. It is the Contractor's responsibility to manage the contaminated soil properly. The City shall not be liable for contaminated soil improperly handled or disposed by the Contractor.

Payment will be on a per cubic yard basis for excavation, stockpiling, and loading contaminated soil.

**804-1.3 Disposal of Contaminated Soil.** If the Bid form does not include a line item for transport and disposal of contaminated soil, arrangements for disposal will be made by the City's TEEM Program. In that situation, the Contractor may be directed by the City to pay for the costs of transport and disposal, in which case the City will reimburse the Contractor in accordance with Extra Work provisions.

If the Bid form does include a line item for transport and disposal of contaminated soil, then the following shall apply. Contaminated, non-hazardous soils shall be transported to a licensed treatment facility within the State or, in the event that a treatment facility will not accept the soil, to a State licensed Class III landfill. The Contractor shall pre-approve their proposed treatment or disposal facility with the City's TEEM Program. Following approval from the City's TEEM Program, the Contractor shall obtain all necessary approvals and authorizations from the treatment or disposal facility and shall provide the City's TEEM Program with copies of all approvals and authorizations prior to scheduling transport. The Contractor shall use a Regulated Waste or Non-Hazardous Waste Data form to document the disposal of the contaminated soil from the Site. The Contractor shall provide the City's TEEM



Program with manifests for each load at least 48 hours prior to the scheduled pickup date. The City's TEEM Program will review the manifests for accuracy. All manifests shall be signed off by the TEEM Program on the date of loading and transport. Copies of executed manifests and treatment or disposal certificates shall be provided to the City's TEEM Program. It is the Contractor's responsibility to manage the contaminated soil properly. The City shall not be liable for contaminated soil improperly handled or disposed by the Contractor.

**804-1.4 Payment.** Payment for work involving contaminated soil shall be included in the following Bid items:

- a) Monitoring and Testing of Contaminated Soil (LS)
- b) Site Storage and Handling of Contaminated Soil (Ton)
- c) Transportation and Disposal of Contaminated Soil (Ton)

The payment shall be included in various Bid items if no Bid item(s) have been provided for management of contaminated soil.

### SECTION 805 – SEWAGE SPILL PREVENTION

**805-1 GENERAL.** The Contractor shall observe and comply with the City's policy of zero spills. The Contractor shall be liable for all damages and fines associated with sewage spills caused by improper support or damage to the existing sewer facilities.

**805-2 SEWAGE SPILL PREVENTION AND RESPONSE PLAN.** Prior to the start of construction, the Contractor shall develop and submit to the Engineer, for review and approval, a written Sewage Spill Prevention and Response Plan. The plan shall include sewage spill response plan, spill containment and cleanup plan, staging area, and sewage bypass and pumping plan.

The Sewage Spill Prevention and Response Plan shall be developed to respond to any construction related sewage spill(s). The plan shall include:

- a) Identifying all nearby environmentally-sensitive areas such as waterways, channels, catch basins and entrances to existing underground storm drains.
- b) Making arrangements for an emergency response unit, stationed at or near the Site, comprised of emergency response equipment and trained personnel to be immediately dispatched in the event of a sewage spill(s). This includes field biologists, archaeologists, or both if in an environmentally-sensitive area such as a canyon.
- c) Developing an emergency notification procedure that includes an emergency response team with telephone numbers and arrangements for backup personnel and equipment. The emergency response unit shall be able to dispatch to the Site 24 hours a day 7 days a week including weekends and holidays. The Contractor shall designate primary and secondary representatives, their respective phone numbers,

pager numbers, and mobile phone numbers. These Contractor's representatives shall be accessible and available at all times to respond immediately to any sewer spill event.

- d) Identifying any property owners who may be affected e.g., the City Park and Recreation Department.

At the preconstruction meeting the Contractor will be provided with a list of the City representatives to contact in case of sewage spill(s). In case of a sewage spill(s), the Contractor shall immediately call the Sewage Spill Hotline number at (619) 527-5481 and shall act immediately without instructions from the City, to control the spill and take all appropriate steps to contain it in accordance with the Sewage Spill Prevention and Response Plan and 805-2.1, "Sewage Bypass and Pumping Plan." The Contractor shall immediately notify the City representatives of the spill and shall report Project name, location, Contractor name, Project Engineer, and Engineer names.

The Contractor shall, within 3 Working Days from the occurrence of the spill, submit to the Engineer a written report describing the following information related to the spill: the location; the nature and estimated volume; the date and time; the duration; the cause; the type of remedial and/or clean up measures taken (including erosion control measures) and the date and time of implementation; the corrective and/or preventive actions taken to avoid further spills; equipment used in spill response; and the environmentally-sensitive habitat such as a water body, if any, impacted and results of any necessary monitoring. The Contractor shall provide a list of who from the City was notified, date and time of notification, date and time the Contractor was notified of the spill, date and time the Contractor arrived on Site.

The Engineer may institute further corrective actions, as deemed necessary, to fully comply with existing laws, ordinances, codes, order or other pertinent regulations. In addition to any penalties provided by federal, state, and local laws, the Contractor shall be responsible for all costs incurred for the corrective actions including mitigation measures (habitat restoration, etc.) and obtaining after-the-fact permits if necessary, in environmentally sensitive areas. These permits include but are not limited to those from the City Planning Department Development Services, California Coastal Commission, U.S. Army Corps of Engineers and the California Department of Fish and Game.

It shall be the Contractor's responsibility to assure that all field forces, including Subcontractors, know and obey all safety and emergency procedures, including the Sewage Spill Prevention and Response Plan applicable to the work, to be maintained and followed at the Site. If in an environmentally sensitive area, such as canyon, stream, or lagoon, impacts shall be minimized. Crews shall be aware at the start of the job of any sensitive environmental habitats, breeding season restrictions, etc.

The Contractor shall take extreme care to prevent spills when working on sewer lines such as when making temporary connection and when connecting new lines into the sewer system. The Contractor shall not trap debris and discharge rock or debris downstream. Avoidance of streams is paramount unless authorized via permits.

The Contractor shall defend, indemnify, protect, and hold harmless the City, its agents, officers, and employees, from and against all claims asserted, or liability established for damages or injuries to any person or property resulting from any sewage spill caused or claimed to be caused by the Contractor's action or failure to take measures to prevent a spill. The Contractor shall be responsible for payment of any fines assessed against the City for such sewage spills. The Contractor's duty to indemnify and hold harmless shall not include any claims or liability arising from the established active or sole negligence or willful misconduct of the City, its agents, officers or employees.

The Contractor shall obtain and maintain an additional insurance coverage for Pollution Liability with its limits and requirements as set forth in 7-3.5.3, "Contractors Pollution Liability Insurance Endorsements." The limits and requirements for Pollution Liability shall be in an amount sufficient to cover potential losses from sudden and accidental pollution. Unless otherwise provided for in the Bid Proposal, all costs associated with the requirements for Sewage Spill Prevention and Response Plan, including additional insurance, shall be included in the prices for other related Bid items.

**805-2.1 Sewage Bypass and Pumping Plan.** The Contractor shall submit to the Engineer for approval, a Sewage Bypass and Pumping Plan at least 15 Working Days prior to implementation of flow diversion in compliance with the City's policy of "ZERO SPILLS." The Sewage Bypass and Pumping Plan shall indicate the sequence of diversion operations, and all other operations the Contractor will establish to maintain wastewater service during the construction period. The Sewage Bypass and Pumping Plan shall include an emergency response plan indicating the procedures, equipment, and activities that will be implemented in the event of an emergency shutdown or failure of the flow diversion equipment used for construction. The Contractor shall be responsible for implementation of the emergency plan in accordance with 805-2 "Sewage Spill Prevention and Response Plan".

The Contractor's Sewage Bypass and Pumping Plan shall be reviewed and approved by the Wastewater Collection Division of the City before flow can be diverted. No deviation from the approved Sewage Bypass and Pumping Plan will be allowed without prior approval from the Engineer.

The Contractor shall observe and comply with all Federal, State, and local laws, ordinances, codes, orders, and regulations which in any manner affect the conduct of the work, specifically as it relates to sewage spills. The Contractor shall be fully responsible for preventing sewage spill(s), containing any sewage spill(s), recovery and legal disposal of any spilled sewage, any fines, penalties, claims and liability arising from negligently causing a sewage spill(s), and any violation of any law, ordinance, code, order, or regulation as a result of the spill(s).

The Contractor shall exercise care not to damage existing public and private improvements, interrupt existing services or facility operations which may cause a sewage spill(s). Any reasonably anticipated utility or improvement which is damaged by the Contractor shall be immediately repaired at the expense of the Contractor. In the event that the Contractor

damages an existing utility or interrupts an existing service, which causes a sewage spill(s), the Contractor shall immediately call the emergency number at (619) 515-3525.

The Contractor shall exercise care not to damage any sensitive habitats or historic resources unless authorized via the discretionary permit and Mitigation, Monitoring and Reporting Program approved by the City.

The Contractor shall provide all facilities, labor, power, and appurtenances necessary to divert wastewater flows as necessary to allow proper installation of the pipeline and/or manhole linings.

The Contractor shall submit as part of their Sewage Bypass and Pumping Plan their monitoring procedure and frequency and shall continuously monitor the flow levels downstream and upstream of the flow diversion to detect any possible failure that may cause a sewage backup and spill(s). The Contractor shall maintain a log of the monitoring and provide daily copies to the Engineer in a manner acceptable to the Engineer.

The Contractor shall inspect and maintain the diversion system daily, including the back-up system. The Contractor shall submit with their Sewage Bypass and Pumping Plan their maintenance procedures and frequency. The Contractor shall maintain a log of all inspection, maintenance and repair records, and provide copies to the Engineer upon request in a manner acceptable to the Engineer.

The Contractor shall size the flow diversion system to handle the peak flow and shall include a 100% backup in the flow diversion system. The Contractor shall provide temporary means to maintain and handle the sewage flow in the existing system as required to complete the necessary construction. The Contractor shall utilize the flow diversion system to mitigate any additional wet weather flows, perform the necessary maintenance and repairs on the flow diversion system, and exercise and ensure the operation of the backup system. Each pump, including the backup pumps, shall be a complete unit with its own suction and discharge piping. The Contractor shall operate the backup flow diversion system for a minimum of 25% of the total diversion time on a weekly basis. The backup flow diversion system shall be fully installed, operational, and ready for immediate use. The diversion system shall be hydraulically tested with clean water prior to wastewater flow diversion. The Contractor shall demonstrate to the satisfaction of the Engineer that both the primary and backup flow diversion systems are fully functional and adequate, and shall certify the same, in writing, to the Engineer in a manner acceptable to the Engineer.

The Contractor shall provide one dedicated fuel tank for every single pump or generator, if fuel or generator driven pumps are used. The Contractor shall provide an emergency standby power generator, if electric power driven pumps are used. The Contractor shall provide a fuel level indicator outside each fuel tank. The Contractor shall continuously (while in use) monitor the fuel level in the tanks and ensure that the fuel level does not drop below a level equivalent of two hours of continuous flow diversion system operation. The Contractor shall take the necessary measures to ensure the fuel supply is protected against contamination. This includes but is not limited to fuel line water traps, fuel line filters, and

protecting fuel stores from precipitation. The Contractor shall monitor all hoses and repair leaks immediately.

**805-2.2 Payment** Unless a Bid item has been provided, full compensation for the Sewage Bypass and Pumping Plan, its implementation e.g., labor, facilities, equipments, power, appurtenances and incidental, shall be included in the payment for sewer main.

### SECTION 806 – WATER DISCHARGES

#### 806-1 GENERAL.

**806-1.1 Hydrostatic Discharge Requirements.** The Contractor shall comply with Regional Water Quality Control Board (RWQCB) Order No. 2002-0020, General Permit for Discharges of Hydrostatic Test Water and Potable Water to Surface Water and Storm Drains, the requirements outlined in the Hydrostatic Discharge Requirements Certification included as an appendix in the Contract Documents.

For discharges over 500,000 gallons per day an individual Notice of Intent shall be filed by the Contractor.

Quarterly reports as required by the Order shall be submitted to the RWQCB and to the City. Reporting requirements and schedule are outlined in the Order. The Contractor shall record the results for each discharge event on the City's furnished reporting form and submit them upon completion of the Project.

**806-1.2 Payment.** Payment for Hydrostatic Discharge Requirements shall be included in the Bid price per linear foot for new water main.

**806-2 DEWATERING.** DELETE 7-8.6.4 in its entirety and SUBSTITUTE the following:

**806-2.1 General.** The dewatering shall include site dewatering and treatment of contaminated water to lower and control groundwater levels and hydrostatic pressures to permit excavation and construction to be performed properly under dry conditions.

Dewatering shall be performed by the Contractor when specifically required by the Plans or Specifications, and as necessary for construction of the Work. Dewatering shall be performed in conformance with all applicable local, state and Federal laws and permits issued by jurisdictional regulatory agencies. Permits necessary for treatment and disposal of accumulated water shall be obtained by the Contractor. Accumulated ground water shall be treated prior to disposal if so specified in the Special Provisions or required by a permit.

The Contractor shall be responsible for the integrity of the finished product and the protection of adjacent structures and facilities impacted by dewatering operation.

**806-2.2 Permits.** Unless the type of the permit is specified in the Special Provisions, necessary permits from regulatory agencies or Metropolitan Wastewater Department (MWW), if applicable, shall be obtained for disposal of water. If the Contractor decides to discharge into sewer system, the Contractor shall obtain permit from MWW for discharging

into sewer system as outlined in the MWWD policy for Ground Water Discharges attached to this contract. If the Contractor chooses to discharge into the storm drain system, the Contractor shall obtain a Regional Water Quality Control Board (RWQCB) permit.

**806-2.3 Dewatering Plan.** The Contractor shall submit a dewatering plan per 2-5.3, "Submittals" detailing its proposed plan and methodology of dewatering and treatment and disposal of accumulated water (when contaminated water is present) prior to commencement of excavation.

The Dewatering Plan shall include:

- a) Identification of location, type and size of dewatering devices and related equipment, the size and type of materials composing the collection system, the size and type of equipment to be used to retain and, if required, treat accumulated water, and the proposed disposal locations.
- b) descriptions of methods and placement of equipment, as well as supporting calculations signed by a Professional Engineer registered in the State of California for dewatering of excavations,
- c) field demonstration of proposed system and verification that adequate personnel, materials and equipment are readily available, and
- d) written evidence of permission from California RWQCB or approved MWWD discharge permit, if not obtained by the City, original signed permits from jurisdictional regulatory agencies or written evidence that such permits are not required.

The Contractor shall refer to the reports prepared by the City and included in the Contract Documents in accordance with 2-7, "Subsurface Data" for the preparation of the dewatering plan.

**806-2.4 Equipment.** Dewatering includes well points, sump pumps, temporary pipelines for water disposal, and rock or gravel placement, sedimentation tanks, equipment necessary for the treatment of contaminated groundwater and other means and services including standby pumping equipment maintained on the jobsite continuously.

Sufficient dewatering equipment shall be installed to pre-drain the water-bearing strata below the bottom of foundations, drains, sewers and other excavations.

The Contractor shall remove equipment when no longer required for dewatering, monitoring or water controlling operations.

**806-2.5 Dewatering Operation.** The Contractor shall comply with the following requirements:

- a) The hydrostatic head in water-bearing strata below foundations, drains, sewers and other excavations shall be reduced to ensure that the water level and piezometric water levels are below the excavation surface at all times.
- b) The dewatering system shall be placed into operation prior to excavation below

ground water level to lower the ground water level and shall be operated continuously 24 hours a day, 7 days a week until drains, sewers and structures have been constructed and fill materials have been placed and dewatering is no longer required.

- c) The site shall be graded to facilitate drainage. Surface runoff shall be diverted from excavations. Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and be pumped or drained by gravity away from the excavation.
- d) Adequate control shall be maintained to ensure that the stability of excavated and constructed slopes are not adversely affected by water, that erosion is controlled and that flooding of excavation or damage to structures does not occur.
- e) Where critical structures or facilities exist immediately adjacent to areas of proposed dewatering, reference points shall be established and observed at frequent intervals to detect any settlement which may develop.
- f) Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at the proposed bottom of excavation.
- g) Flotation of structures and facilities shall be prevented by maintaining a positive and continuous removal of water.
- h) The release of groundwater to its original level shall be performed in such a manner as not to disturb natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, pipelines, and sewers.
- i) If foundation soils are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, the affected areas shall be excavated and replaced with drain rock at no additional cost to the City.
- j) If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sand packed and/or other means used to prevent pumping of fine sands or silts from the subsurface. A continual check shall be maintained to ensure that the subsurface soil is not being removed by the dewatering operation.
- k) Water and debris shall be disposed of in a suitable manner without damage to adjacent property. No water shall be drained into work built or under construction. Water shall be filtered to remove sand and fine-sized soil particles and further treated if required by regulatory agencies before disposal into any drainage system or sewer system.
- l) The Contractor may discharge water into the sewer system as outlined in the MWWD policy for Ground Water Discharges attached to this contract.
- m) The Contractor shall maintain operation of monitoring and settlement measurement systems until their removal is approved. To the extent approved, well points and like items may be abandoned in place, otherwise all temporary dewatering, recharging facilities, or both shall be removed in a manner satisfactory to the Engineer. Any items abandoned in place shall be indicated on the Red-line Plans.
- n) If indicated in the Contract Documents or following groundwater testing during construction it is found to be contaminated, the Contractor shall provide, install,



maintain and operate the equipment necessary to treat the contaminated water to bring it to compliance with the dewatering and discharging permits from RWQCB, MWW, or both.

- o) The Contractor shall include adequate time in its schedule to obtain permits prior to start of construction. If required by the permitting entity, the City may assist the Contractor in obtaining permit approval.
- p) The Contractor shall comply with Order No. 2001-96, (RWQCB), San Diego Region for groundwater remediation and dewatering waste discharges to surface waters within the San Diego region or City's discharge permit, as applicable.

**806-2.6 Payment.** Payment for acquiring applicable permits and permit fees and dewatering operation and equipment will be made as follows:

- a) The Allowance Bid item for Permit and Discharge Fees shall cover the payment for fees and the associated expenses e.g., water samples and lab testing for obtaining permits.
- b) The Lump Sum Bid item for Equipment & Set up for Contaminated Water will cover the payment for Dewatering Plan, providing, installing, maintaining and operating the proper equipment necessary to treat the contaminated water to bring it to a level that is in compliance with the permitting agencies' requirements, and the removal of the equipment from the Site.
- c) The Lump Sum Bid item for Treatment & Disposal of Contaminated Water covers the payment for treatment, handling, and disposal of the contaminated groundwater in compliance with the permitting agencies requirements.
- d) When there is no contamination present, the Lump Sum Bid item for Dewatering Operation shall cover the payment for Dewatering Plan and dewatering operation.

### SECTION 807 – CLEANUP AND DUST CONTROL

**807-1 AFFIDAVIT OF LEGAL DISPOSAL.** As a condition of Final Payment, the Contractor shall submit a signed and notarized affidavit stating that all brush, trash, debris, and surplus materials resulting from this Project have been disposed of in a legal manner. See Affidavit of Disposal, in the Contract Documents. Disposal of refuse generated as a result of this contract at the City landfills shall be subject to a fee. The cost of disposing of this refuse should be included in Contractor's Bid. Contact the Refuse Disposal Division at (858) 573-1418 for fee information.

**807-2 DUST ABATEMENT.** The Contractor shall carry out effective measures whenever and as often as necessary to prevent its operation from producing dust in amounts damaging to property, cultivated vegetation, domestic animals, or causing a nuisance to persons living or occupying buildings in the vicinity. The Contractor shall be responsible for any damage resulting from any dust originating from its operations. The dust abatement measures shall be continued until the Contractor is relieved of further responsibility by the Engineer.

Payment for dust abatement shall be included in the various Bid items.

**807-3 RUBBISH CONTROL.** The Contractor shall keep the Site and other areas used by it in a neat and clean condition; free from any accumulation of rubbish. The Contractor shall dispose of all rubbish and waste materials of any nature occurring at the Site, and shall establish regular intervals of collection and disposal of such materials and waste.

The Contractor shall keep the streets in and adjacent to the construction area and its haul roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations at all times.

Equipment and material storage shall be confined to areas approved by the Engineer. Disposal of all rubbish and surplus materials shall be off the Site, at the Contractor's expense, and in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and the particular requirements of Subpart H, §1926.252 of the OSHA Safety and Health Standards for Construction.

Payment for rubbish control shall be included in the various Bid items.

### SECTION 808 - RESOURCE DISCOVERIES

DELETE 6-3.2 in its entirety and SUBSTITUTE the following:

**808-1 ARCHAEOLOGICAL, NATIVE AMERICAN, AND PALEONTOLOGICAL DISCOVERIES.** If a Mitigation, Monitoring, and Reporting Program [MMRP] for Historical, Paleontological, or both resources has been prepared for the Project, then the MMRP will control in lieu of this section (except for reference to 6-6, "DELAYS AND EXTENSION OF TIME"), unless the MMRP is silent to these issues.

If discovery is made of items of Native American, Archaeological, and/or Paleontological interest, the Contractor shall immediately notify the Engineer and cease any soil disturbing activity in the area of discovery and any nearby area. Upon notification by the Contractor of the discovery of human remains of unknown origin, the Engineer will immediately notify the San Diego County Coroner [Medical Examiner] at (858) 694-2895, in accordance with the California Health and Safety Code §§7050.5 and 7051.

The City will not authorize any further excavation or disturbance of the Site or any nearby area until the Medical Examiner has concluded an investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the remains have been made to the City. Excavation in the areas of interest shall not resume until authorized by the Engineer in writing.

The Contractor shall make allowances for temporary work stoppages to evaluate and salvage Native American, Archaeological, and/or Paleontological discoveries. Work stoppages may be for a minimum of 1 hour to a maximum of 2 days. If suspension of construction activities for analysis, salvaging of resources, or both exceed 5 days along the entire alignment, the Contractor shall be entitled to an extension of time in accordance with the provisions of 6-6, "DELAYS AND EXTENSIONS OF TIME."

Discoveries which may be encountered include, but are not limited to, fossil resources, historic or prehistoric human bones or remains, animal bones or remains, stone implements or other artifacts and/or remnants of dwelling sites, and any items created or altered by humans more than 45 years ago, excluding pipes, laterals and appurtenances.

There are severe civil and criminal consequences for failure to treat Native American, Archaeological, Paleontological, or both discoveries in accordance with local, State, and Federal laws. The Contractor shall notify Subcontractors and Suppliers of the requirements of this section.

The Contractor shall indemnify and hold the City, its officers and employees, harmless from any claims asserted or liability established, including penalties from local, state or federal agencies, arising from the failure of the Contractor, Subcontractors or Suppliers, to notify the Engineer of such discoveries in accordance with this section.

**808-1.2 Archeological and Native American Monitoring Program.** Unless specified otherwise in the Contract Documents, the Contractor shall retain a qualified archaeologist, approved by Environmental Analysis Section (EAS). The archeologist shall retain the appropriate Native American representative. Archeologist and the Native American representative shall attend the pre-construction meeting, to implement the Archaeological and Native American Monitoring Program. For further provisions, see Appendix "A".

Full compensation for furnishing Archaeological and Native American Monitoring Program and report preparation, as prescribed in Appendix "A", shall be included in the contract Bid item for Archaeological and Native American Monitoring Program. However, in the event of a significant discovery, the Contractor shall be entitled to additional compensation in accordance with 3-3, "Extra Work", for implementation of a Mitigation Program as set forth in Appendix "A".

**808-1.3 Paleontological Monitoring Program.** Unless specified otherwise in the Contract Documents, the Contractor shall retain a qualified paleontologist, approved by EAS, who shall attend the pre-construction meeting, to implement the Paleontological Monitoring Program. For further provisions, see Appendix "A".

Full compensation for furnishing paleontological monitoring program and report preparation, as prescribed in Appendix "A", shall be included in the contract Bid item for Paleontological Monitoring Program. However, in the event of a significant discovery, the Contractor shall be entitled to additional compensation in accordance with 3-3, "Extra Work," for implementation of a Mitigation Program as set forth in Appendix "A".

**808-1.4 Archaeological and Native American Mitigation.** In the event of a significant Native American or archaeological discovery and after consultation with EAS staff, the Contractor shall implement a mitigation program as set forth in Appendix "A". In accordance with the Mitigation and Monitoring Reporting Program, the mitigation program shall include but not be limited to, preparation and implementation of a research design and data recovery program, recovery, sorting, cleaning, cataloging/identifying/analyzing,

curation (bagging, placement into archival boxes, delivery to an appropriate institution, and any fees required by the institution), and reporting, of artifact remains.

Work for mitigation shall be paid from the Allowance Bid item for Archaeological and Native American Mitigation and Curation. The Contractor shall provide the Engineer with invoices for the Work performed and be reimbursed from the amount allocated.

Excavation Work up to 10' deep, by the Contractor, of areas outside of the trench for further recovery of artifacts (e.g. test pits) shall be included in the Bid item for Archaeological and Native American Mitigation Excavation and be paid for on a cubic yard basis. This shall include coordination of all parties involved and traffic control and/or steel plating for a period of up to two weeks. Payment for additional traffic control and/or steel plating beyond a two week period will be made in accordance with 3-3, "EXTRA WORK."

**808-1.5 Paleontological Mitigation.** In the event of a significant paleontological discovery and after consultation with EAS LDR staff, the Contractor shall implement a mitigation program as set forth in Appendix "A". In accordance with the Mitigation and Monitoring Reporting Program, the mitigation shall include but not be limited to, recovery, sorting, cleaning, cataloging/identifying/analyzing, curation (bagging, placement into archival boxes, delivery to an appropriate institution, and any fees required by the institution), and reporting, of fossil remains.

Work for mitigation shall be paid from the Allowance Bid item for Paleontological Mitigation and Curation. The Contractor shall provide the Engineer with invoices for the Work performed and be reimbursed from the amount allocated.

Excavation Work up to 10' deep, by the Contractor, of areas outside of the trench for further recovery of fossils (e.g. test pits) shall be included in the Bid item for Paleontological Mitigation Excavation and be paid for on a cubic yard basis. This shall include coordination of all parties involved and traffic control and/or steel plating for a period of up to two weeks. Payment for additional traffic control and/or steel plating beyond a two week period will be made for in accordance with 3-3, "EXTRA WORK."

### SECTION 809 - ASBESTOS MATERIALS

**809-1 FRIABLE ASBESTOS MATERIALS.** Friable asbestos-containing materials (material that can be crumbled, pulverized, or reduced to powder in hand) are regulated as a hazardous waste and shall be transported by a licensed hazardous waste hauler and disposed of in an appropriate landfill. If the Contractor identifies friable asbestos containing materials at the Site, the Contractor shall immediately stop Work in the affected area and notify the Engineer.

**809-1.1 Handling and Disposal of Asbestos Cement Pipe.** If asbestos cement pipe (ACP) is identified that has not been included in the Work, the Contractor shall take adequate care to maintain the ACP in a non-friable condition and notify the Engineer immediately. Any authorized Extra Work to remove the ACP shall be in compliance with City standard specifications and with all applicable state and federal regulations. Prior to the Contractors performing Work on ACP, the Contractor shall submit its Work plan for the City's Asbestos

and Lead Management Program review and approval in accordance with 2-5.3, "Submittals." The City reserves the right to select another qualified the Contractor to perform the asbestos related Work.

**809-1.1.2 Disposal of Non-Friable Asbestos.** If non-friable asbestos cement pipe (ACP) is identified on this project, the Contractor shall ensure adequate care is employed to maintain the ACP in a non-friable condition. Removal of ACP shall be in whole sections where possible. Cutting or breaking of ACP to facilitate removal shall be in compliance with California Regulations, Title 8, §5208. Contractor shall at a minimum follow the following requirements for ACP that is to be cut or broken.

- a) Evacuate the area of unauthorized personnel, post warning signs, and provide adequate barriers to keep unauthorized personnel out of the area.
- b) Provide asbestos accredited workers performing the cutting or breaking of ACP personal protective equipment of at least a respirator and disposable clothing (worker shall be in compliance with respiratory protection requirements of Title 8, §5414).
- c) Area to be cut or broken shall be adequately wetted with amended water to reduce fiber emission. Method employed by Contractor shall be determined to minimize fiber release. Power saw cutting shall not be allowed. Related debris from the cutting or breaking of ACP shall be considered friable. The Contractor shall dispose of the friable material in accordance with California regulations Title 22.
- d) Waste generated and ACP shall be wrapped in 6 mil polyethylene sheeting or bags and properly labeled.

The Contractor is responsible for all ACP removal and associated contamination. For disposal of non-friable ACP, Contractor shall comply with City of San Diego Miramar Landfill Acceptance Criteria for the Disposal of Non-Friable Asbestos Waste requirements. A copy of the requirements can be obtained by calling (858) 573-1415.

Payment for the disposal of non-friable asbestos-containing materials shall be per linear foot.

**809-1.2 Disposal of Friable Asbestos.** Friable asbestos-containing materials (material that can be crumbled, pulverized, or reduced to powder in hand) are regulated as a hazardous waste and shall be transported by a licensed hazardous waste hauler and disposed of in an appropriate landfill.

Upon discovery of non-friable asbestos, the Contractor shall immediately notify the Engineer.

Payment for the disposal of friable asbestos-containing materials shall be in accordance with Section 3, "CHANGES IN WORK."

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**809-1.2 Payment.** Payment for the handling and disposal of ACP shall be in accordance with 3-2.4, "Agreed Prices" if a Bid item for it has not been provided. Any authorized Extra Work shall be paid in accordance with 3-3, "EXTRA WORK."

((((((((((((((END OF CITY SUPPLEMENT))))))))))))))

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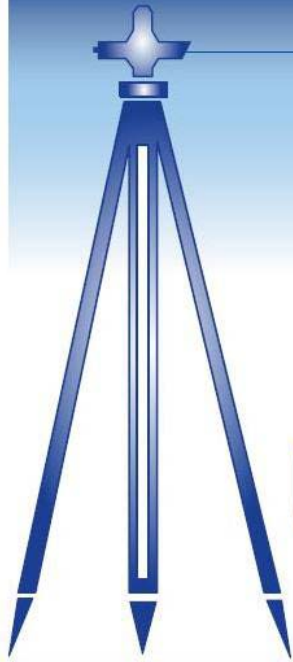
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CITY OF SAN DIEGO



# Engineering & Capital Projects Department

**"Engineering Today for a Better Tomorrow"**



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