

# **SPECIFICATIONS AND CONTRACT DOCUMENTS**

**FOR THE  
CONSTRUCTION OF**

## **SANTA TERESA WATER TREATMENT PLANT AIR WASH PIPELINE REPLACEMENT PROJECT**

Project No. 93764004

Contract No. C0662

JULY 2020



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AIR WASH PIPELINE REPLACEMENT PROJECT

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CONTRACT NO. C0662

SANTA CLARA VALLEY WATER DISTRICT

Approved by:



Emmanuel Aryee, P.E.  
Capital Engineering Unit Manager  
Water Utility Capital Division

6/1/2020

Date



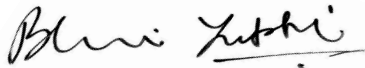
Accepted by:



Heath McMahon, P.E.  
Deputy Operating Officer  
Water Utility Capital Division

6/1/2020

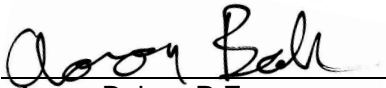
Date



Bhavani Yerrapotu, P.E.  
Deputy Operating Officer  
Treated Water Operations & Maintenance Division

6/1/2020

Date



Aaron Baker, P.E.  
Deputy Operating Officer  
Raw Water Operations Division

6/1/2020

Date

JULY 2020

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## **STANDARD PROVISIONS**

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# STANDARD PROVISIONS

## SECTION 1. DEFINITIONS

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Whenever in these Specifications and other Contract Documents the following abbreviations and terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

### ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISI	American Iron and Steel Institute
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
API	American Petroleum Institute
AREA	American Railway Engineering Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
AWG	American Wire Gage
AWPA	American Wood Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BAAQMD	Bay Area Air Quality Management District
CAEPA	California Environmental Protection Agency
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CWA	Federal Clean Water Act
DHS	California Department of Health Services
HSC	California Health and Safety Code
IEEE	Institute of Electrical and Electronics Engineers
MSDS	Material Safety Data Sheet
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NPDES	National Pollution Discharge Elimination System
RWQCB	California Regional Water Quality Control Board
SAE	Society of Automotive Engineers
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
UBC	Uniform Building Code
UL	Underwriters Laboratories
USEPA	United States Environmental Protection Agency
WCLB	West Coast Lumber Inspection Bureau
WWPA	Western Wood Products Association

**DEFINITIONS**

**Acceptance:** The formal, written acceptance of the Contract by the District's Board of Directors, as documented in a recorded Notice of Completion of Contract and Acceptance of Work. Acceptance indicates that all Work has been completed in all respects in accordance with the Drawings and Specifications and with any modifications thereof previously approved.

**Activity Hazard Analysis (AHA)/Job Hazard Analysis (JHA):** A form used to identify the task and break it down into steps, identify the hazards associated with each step, and identify the control measures used for each step to protect the worker, environment, or public. This form is also commonly referred to as a Job Safety Analysis (JSA).

**Addendum:** Written or graphic instruments issued prior to the opening of Proposals that make changes, additions, or deletions to the Bid Documents, or Contract Documents.

**Agreement:** The written document executed by the parties formalizing the Contract.

**Approved, Directed, Ordered, or Required:** Whenever these words or their derivatives are used, it is the intent, unless otherwise clearly stated, that approval or direction by the Engineer is indicated.

**Article:** A numbered portion of a title Section of the Specifications.

**Bid:** The completed Proposal and all associated Bid Forms, including Bidder's Bond or other Bidder's security. Bids not accompanied by the required documents are considered incomplete bids and are nonresponsive.

**Bid Documents:** All documents to be considered when preparing a Bid. The Notice to Bidders, Instructions to Bidders, Proposal and all accompanying Bid Forms, Bidder's Bond or other Bidder's security, and Contract Documents.

**Bidder:** Any individual, firm, partnership, corporation, or combination thereof, submitting a proposal for the Work contemplated, acting directly or through a duly authorized representative.

**Board, Board of Directors:** The Board of Directors of the District.

**Certified Industrial Hygienist:** A professional who is certified by the American Board of Industrial Hygienists as trained to evaluate safety and health hazards and to determine safety measures necessary for personnel working under hazardous conditions.

**Code:** The terms Government Code, Labor Code, etc. refer to codes of the State of California.

**Competent Person:** A person capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt, corrective measures to eliminate those conditions.

**Construction Equipment:** Equipment used for the performance of work but not incorporated into the Project.



**Contract:** The written Agreement between the Contractor and the District comprised of the Contract Documents.

**Contract Documents:** Refer to Article 2.01. Contract Documents and Precedence.

**Contract Time(s):** The time (Days) allowed for completion of the entire Work or portion thereof as defined by specified Milestones that meets the requirements of the Contract Documents and is accepted by the Engineer. See also Project Completion and Milestone Completion.

**Contract Price(s):** The price (dollars) for completion of the entire Work set forth in the Contract Documents.

**Contractor:** The entity or person with whom the District has executed the Contract and has identified as such therein and referred to throughout the Contract Documents as singular in number and neuter in gender. The term "Contractor" means Contractor or its authorized representative.

**Controlling Item of Work:** Any feature or combination of features of the Work considered at the time by the Engineer, which if delayed, will delay the completion of Work associated with a specified Contract Time(s).

**Days:** Calendar days, unless otherwise designated.

**Delay:** An increase in the duration or length of time for performing the Work that is caused by any event, action, inaction, or factor. The five types of delay are defined in Article 3.08. Change in Contract Time(s).

**Definable Feature of Work:** A task that is separate and distinct from other tasks and that has separate control requirements.

**District:** The Santa Clara Valley Water District.

**Drawings:** The official Drawings, working Drawings, detail Drawings, and supplemental Drawings, or reproductions thereof, that show the location, character, dimension, and details of the Work to be done and that are to be considered as part of the Contract.

**Engineer:** The designated Engineer as defined in Article 3.02. Engineer of the Standard Provisions who, acting either directly or through a properly designated representative, assumes all duties and responsibilities, and has all rights and authority in accordance with the Contract Documents.

**Equipment:** Equipment incorporated or to be incorporated into the Project.

**First Chargeable Day:** The first day of Contract Time allowed for completion of the entire Work. The First Chargeable Day will be specified in the Notice to Proceed.

**Fixed Costs:** Any necessary labor, Material, and Equipment costs directly expended on the item or items under consideration that remain constant regardless of the quantity of Work done.

**Hazardous Material:** (A) Any substance, product, waste, or other material of any nature whatsoever that is or that becomes listed, regulated, or addressed pursuant to any Federal, State, or Local Statute, Law, Ordinance, Resolution, Code, Rule, Regulation, Order, or Decree regulating, relating to, or imposing liability (including, but not limited to, response, removal, and Remediation costs) or standards of conduct or performance concerning any hazardous, toxic, explosive, corrosive, flammable, infectious, radioactive, carcinogenic, mutagenic, or as otherwise dangerous waste, substance, or material; (B) any substance, product, waste, or other material of any nature whatsoever whose presence in and of itself may give rise to liability under any of the above Statutes or under any statutory or common law theory based on negligence, trespass, intentional tort, nuisance, strict, or absolute liability or under any reported decisions of a State or Federal court; (C) any substance without limitation that contains petroleum or crude oil, including, but not limited to, petroleum and petroleum products.

**Hazardous Waste:** Any substance or material as defined in the California Hazardous Waste Control Act Health and Safety Code, Chapter 6.5, Sections 25100 - 25257.1, or in the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq.

**Liquidated Damages:** The amount stated in the Specifications, as provided for in Government Code Section 53069.85, to be paid to the District or to be deducted from any payments due or to become due the Contractor for each Day of Inexcusable Delay in completing the whole or any specified portion of the Work beyond the specified Contract Time(s) or any other amount specifically stated as a Liquidated Damage in the Contract.

**Material:** Material incorporated or to be incorporated into the Project.

**Milestone:** A specified portion of the Work identified in the Contract as a Milestone that is to be completed under the Contract.

**Milestone Completion:** The date determined by the District when the Milestone is to be complete. Milestone Completion does not constitute acceptance but does establish the completion date of the Milestone for the purpose of assessing Liquidated Damages, if any, associated with the Milestone.

**Personnel Protection:** Equipment and procedures that minimize human exposure to Regulated Material, Hazardous Material, Hazardous Waste, or unsafe situations.

**Plans, Construction Plans:** See Drawings.

**Project:** The erection, construction, alteration, repair, or improvement to be accomplished under the Contract. Refer to Work.

**Project Completion:** The stage at which the whole Work is complete per the Contract Documents, and the Engineer has performed the final inspection and issued a Project Completion letter.

**Proposal:** The Proposal states the price for which the Bidder proposes and agrees to perform the Work. See Proposal and Bid Items, Bid Form No. 1.

**Qualified Biologist:** A biologist who has the experience, education and training necessary to perform specific tasks related to the biological subject discipline, and in an unbiased fashion. The term 'qualified biologist' is used generically to mean a biologist who is trained to perform the given task; specifically, a fisheries biologist, wildlife biologist, or botanist. Training must be in the field to which the task is related. (Refer to the appendices for specific fields of study).

**Reasonable Accuracy:** Within the tolerances as shown on the Drawings or as indicated in the Specifications.

**Regulated Material:** Any substance or combination of substances for which Federal, State, or Local regulations require special management, storage, disposal, or handling practices. This includes, but is not limited to, material defined as Hazardous Material and Waste; designated waste (California Water Code Section 13173); and special waste (California Code of Regulations, Title 22, Div. 4.5 [Environmental Health Standards for the Management of Hazardous Waste]).

**Remediation:** Restoration of contaminated soil, groundwater, or other materials to its pre-contaminated level or to a level acceptable to the District and Local, State, and Federal agencies.

**Responsible Bidder:** Responsible Bidder as defined in California Public Contract Code Section 1103.

**Specifications:** The directions, provisions, and requirements contained in the Standard Provisions, Special Provisions, and Technical Provisions.

**Subcontractor:** An entity or person contracting with the Contractor or with another Subcontractor to perform any portion of the Work. The term "Subcontractor" is referred to throughout the Contract Documents as singular in number and neuter in gender and means a Subcontractor or its authorized representative.

**Supplier:** An entity or person contracted with the District, the Contractor or its Subcontractors to provide materials and/or equipment for any portion of the Work. The term "Supplier" is referred to throughout the Contract Documents as singular in number and neuter in gender and means a Supplier or its authorized representative.

**Total Bid Price:** The sum stated in the Bid for which the Bidder offers to perform the Work described in the Bid Documents. The Total Bid Price shall include the entire cost of all Work necessary for a complete and fully operational structure or facility in accordance with the requirements of the Contract Documents.

**Work:** Refer to Article 3.01. Work to be Done, paragraph A. References in the Contract Documents to "Work" may be to specific items of Work.

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## **SECTION 2. CONTRACT DOCUMENTS**

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### **2.01. Contract Documents and Precedence**

- A. The Contract Documents comprise the entire Agreement between the District and the Contractor concerning the Work. The Contractor shall properly perform all requirements of the Contract Documents.
- B. The Contract Documents include the District's Contract form and any exhibits attached thereto, including the Notice to Bidders, Instructions to Bidders, Proposal Form, Proposal, Standard Provisions, Special Provisions, Technical Provisions, Drawings, Specifications, Addenda, Appendices, approved Change Orders, and Directed Change Orders (DCO) as defined in Section 3, if any.
- C. The Contract Documents are intended to be complementary and include all items necessary for the Contractor's proper execution and completion of the Work. Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be as if shown or mentioned in both. Any part of the Work not shown or mentioned in the Drawings or in the Specifications that is inferable or implied by either, or that is necessary or usual for proper performance of the Work, shall be provided by the Contractor at its own expense.
- D. In case of conflicts, errors, and discrepancies in any of the Contract Documents, the order of precedence (from highest to lowest priority) is as follows. Within the same order of precedence, specific requirements shall take precedence over general requirements:
  - 1. Change Orders (CO) or DCO
  - 2. Agreement
  - 3. Addenda
  - 4. Special Provisions
  - 5. Technical Provisions
  - 6. Drawings/Plans
  - 7. Standard Provisions
  - 8. State Specifications and Plans
  - 9. Appendices
- E. With reference to the Drawings:
  - 1. Figures or numerical dimensions govern over scaled dimensions.
  - 2. Detail Drawings govern over general Drawings.

3. Addenda/CO or DCO Drawings govern over Contract Drawings.
4. Contract Drawings govern over standard Drawings.
5. Notes apply only to the Drawings where the notes appear, unless classified as “typical,” “general,” or “universally applicable,” in which case they apply to all Drawings where the conditions or circumstances noted occur.
6. Typical details apply to all Drawings, unless a specific, different detail is shown.

**2.02. State Specifications and Plans**

- A. Unless otherwise stated, State Specifications and Plans referred to in these Specifications shall be the latest published edition of the State of California Department of Transportation Standard Specifications and Standard Plans and updates thereto and are by reference made a part of these Specifications the same as though set out in full, as to the provisions requiring compliance.
- B. When specifically stated to follow the State Specifications and Plans for an item, the Work set forth in these Contract Documents shall be accomplished in accordance with the appropriate provisions and details of the State Standard Specifications and Standard Plans.

**2.03. Clarification of Contract**

- A. The following interpretative rules apply throughout the Contract Documents:
  1. The provisions of the Contract Documents are complementary and should be interpreted to view the Contract Documents as a whole.
  2. A concept phrased in the singular should be interpreted in the plural as required.
  3. Masculine includes feminine and feminine includes masculine.
  4. The words “shall,” “will,” and “must” in any of their tenses indicate mandatory requirements. The word “may” indicates “may apply” or “may not apply.”
  5. The use of examples (e.g., “such as” or “including”) does not limit or exclude examples not specifically mentioned.
  6. The words “provide,” “furnish,” “perform,” “construct,” and “install” mean that the Contractor shall provide, perform, construct, and install and shall include all services necessary to provide, perform, construct, and install unless preceded by the word “only.”

- B. The Contract Documents are not complete in every detail but show the purpose and intent only. The Contractor shall comply with their true intent and meaning, taken as a whole, and shall not avail itself of any manifest error, omission, discrepancy, or ambiguity that appears in the Contract Documents, instructions, or work performed by others.
- C. All corrections of readily apparent errors or omissions in the Contract may be made by the Engineer when such corrections are necessary for the proper fulfillment of their intention as construed by the Engineer. The misplacement, addition, or omission of any word, letter, figure, or punctuation mark that has no substantive legal effect will in no way change the due spirit, intent, or meaning of these Specifications.
- D. Any part of the Work not shown on the Drawings or described in these Specifications, but that is reasonably or ordinarily implied by either, shall be furnished and installed by the Contractor as if fully described in these Specifications and shown upon the Drawings.
- E. **Contract Document Clarifications (CDC):** A document initiated by the District consisting of supplementary details, instructions, or information issued by the District that clarifies or supplements the Contract Documents. Contract Document Clarifications do not constitute a change in Contract Work, Contract Price(s), or an extension in Contract Time(s) unless requested by the Contractor and approved by the District in accordance with the Contract Documents.
- F. Payment for items of Work that are called for in the Specifications or that are shown on the Drawings but that are not separately identified in the Proposal Form, shall be compensated as part of the Bid price of one or more of the items that are listed; no additional payment shall be made.

#### **2.04. Requests for Information**

- A. **Request for Information (RFI):** A document prepared by the Contractor requesting information from the District regarding the Project or Contract Documents.
- B. Contractor shall be responsible for its costs and the costs of its Subcontractors to review Contract Documents and field conditions and to implement and administer an RFI system throughout the Contract Time(s) in accordance with the requirements of the Contract. The Contractor shall be responsible for costs incurred by the District for the work of the District's consultants and District administrative efforts in answering Contractor RFIs where the answer could reasonably be found by reviewing the Contract Documents.
- C. The Contractor shall carefully review the appropriate portions of the Contract Documents a minimum of 30 Days in advance of the Work to be executed for the express purposes of checking for manifest errors, omissions, discrepancies, or ambiguities. The Contractor shall not be entitled to any compensation for

Delays, disruptions, inefficiencies, or additional administrative effort caused by the Contractor's untimely review of the Contract Documents.

- D. Should it appear that the Work to be done or any of the matters relative thereto are not sufficiently detailed or explained in the Specifications or on the Drawings, or if the Contractor discovers any discrepancies between the Contract Drawings and conditions in the field, or any errors or omissions in the Contract, or in the layout given by stakes, points, or instructions, the Contractor shall submit a written RFI to the Engineer. If the Contractor proceeds with any such Work without receiving such clarification or RFI reply, it shall be responsible for correcting all resulting damage and any nonconforming Work.
- E. The Engineer will issue written clarification or interpretation of Contract Document requirements in response to the Contractor's requests and other sources of information. The Engineer's decision thereon shall be final; the Contractor shall conform to it as part of the Contract.

#### **2.05. Examination of Drawings, Specifications, and Site of Work**

- A. As noted in the Notice to Bidders, the Contractor's submission of a Proposal is conclusive evidence that the Contractor investigated and is fully aware of the conditions and difficulties to be encountered of the character, quality, and quantities of work to be performed, the Material to be furnished, and the requirements of the Proposal, Drawings, Specifications, and other Contract Documents.
- B. Where investigation of subsurface conditions has been made by the District in respect to foundation, characterization of soils, groundwater, or other design, Bidders may inspect the records of the District as to such investigation, including examination of samples and drill cores, if any. When logs of test boring showing a record of the data obtained by the District's investigation of subsurface conditions are made available, these logs represent only the opinion of the District as to the character of material encountered by it in its test borings and are made available only for the convenience of Bidders.
- C. Note that the District's investigation of subsurface conditions is made for the purpose of design. The District assumes no responsibility whatsoever in respect to the sufficiency of test borings, or to accuracy of the log of test borings, or to other preliminary investigations, or of the interpretation thereof. There is no guarantee, expressed or implied, that the conditions indicated are representative of those existing throughout the Work, or to any part of it, or that unforeseen developments may not occur.
- D. Making such information available to the Contractor is not to be construed in any way as a waiver of the provisions of this Article; Bidders must satisfy themselves through their own investigations, analyses, and interpretations as to conditions to be encountered.



- E. No information derived from such inspection of records or from preliminary investigations made by the District, or from the Engineer, or from assistants, or from the maps, Specifications, profiles, or Drawings will in any way relieve the Contractor from any risk or from properly fulfilling all the terms of the Contract.

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## **SECTION 3. SCOPE OF WORK**

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### **3.01. Work to be Done**

- A. The performance by the Contractor of all of its responsibilities and obligations set forth in the Contract Documents. Work includes, but is not limited to, providing labor, Materials, Equipment, testing, services, and documentation required by the Contract Documents. References in the Contract Documents to "Work" may be to specific items of Work. All Work performed is to be in compliance with the Contract Documents.
- B. During construction, the Contractor shall keep the worksite, areas adjacent to the worksite or otherwise impacted by the Contractor's operations and access roads in an orderly condition, free and clear of debris and discarded materials.

### **3.02. Engineer**

- A. The Engineer of the District shall be the District's representative who assumes all duties and responsibility and has all rights and authority as assigned in the Contract Documents.
- B. The Engineer of the District is the Deputy Operating Officer or Assistant Operating Officer of the Water Utility Capital or Watershed Capital or Water Utility Technical Support Division or Office of Watersheds as applicable. Administrative hearings, if required, will be conducted by an Operating Officer of a different Division or Office.
- C. Authority of Engineer: The Engineer shall decide all questions that may arise as to the quality or acceptability of Material furnished, Work performed, and rate of progress of the Work; all questions that may arise as to the interpretation of the Drawings and Specifications; and all questions as to the acceptable fulfillment of the Contract on the part of the Contractor. The Engineer's decisions shall be final. The Engineer has the authority to enforce these decisions and provide direction to the Contractor, which the Contractor shall carry out promptly.

### **3.03. Contractor Staffing**

- A. A project manager and superintendent shall be provided as specified below:
  - 1. The Contractor shall submit for approval in writing before starting the Work the name of the project manager and superintendent who shall have complete authority to represent and act for the Contractor. This submittal shall also include a list of reference projects with the following information: (i) the individual's name; (ii) the project name that serves as the basis of qualification; (iii) the project site location; (iv) a brief project description; and (v) the name and mailing address of the project owner.
  - 2. The project manager shall have at a minimum seven (7) years' experience as a contractor's project manager on public works with not less than four (4) years' experience as a project manager on projects with

- complexity and configuration similar to the Work described in the Contract Documents.
3. The superintendent shall have at a minimum seven (7) years' experience as a contractor's general superintendent on public works with not less than four (4) years' experience as a superintendent on projects with complexity and configuration similar to the Work described in the Contract Documents.
  4. The superintendent of the Contractor shall normally be present at the site of the Work at all times while Work is actually in progress on the Contract. During any period when Work is suspended, arrangements acceptable to the Engineer shall be made for any emergency Work that may be required to be done by the Contractor.
  5. Whenever the Contractor or an authorized representative is not present on any part of the Work where it may be desired to give direction, orders will be given by the Engineer, which shall be received and obeyed by the superintendent who may have charge of the particular Work in reference to which the orders are given. Any order given by the Engineer not otherwise required by the Specifications to be in writing will, on the request of the Contractor, be given or be confirmed by the Engineer in writing.
  6. If the project manager or superintendent is not deemed qualified or if the project manager's or superintendent's performance on the Work is determined to be unsatisfactory by the Engineer, the project manager or superintendent shall be immediately removed from the Project. The Contractor shall submit for approval the same information described in this article for a proposed substitute project manager or superintendent.
  7. The Contractor shall designate, in writing, the names and telephone numbers of at least three (3) representatives who can be contacted at any time in the event that an emergency occurs.
- B. A Professional Scheduler shall be provided unless removed in the Special Provisions. The Professional Scheduler shall meet the requirements specified in Article 5.04. Professional Scheduler. If Professional Scheduler is not required, the Contractor is responsible for providing adequate resources required to develop and to maintain schedules.
- C. A Site Safety and Health Supervisor shall be provided unless removed in the Special Provisions. The Site Safety and Health Supervisor shall meet the requirements specified in Article 8.11. Site Safety and Health Supervisor.
- D. A Field Quality Control Manager shall be provided if required in the Special Provisions. The Field Quality Control Manager shall meet the requirements specified in the Special Provisions Article 20.04.02. Contractor's Quality Staffing Requirements.

**3.04. Character of Workers**

- A. Any Subcontractor or person employed by the Contractor or Subcontractor who fails or refuses to carry out the directions of the Engineer, or who appears to the Engineer to be incompetent, or who acts in a disorderly or improper manner shall be removed from the Work immediately on the written request of the Engineer; such person shall not again be employed on the Work.

**3.05. Layout of Work and Surveys****3.05.01 Responsibility of District**

- A. The District shall establish survey control points and reference points as shown on the Drawings for required field layout by the Contractor.
- B. The District shall provide only the minimum survey crew services essential for orderly performance of the Work; District survey crews will not be available at all times for the Work under these Specifications.
- C. The District shall provide to the Contractor the station(s) and offset distance(s) to all reference points and benchmarks that were provided by the District in paragraph A.
- D. The District shall establish required stakes only once. Survey stakes destroyed or removed will be replaced by the District at the Contractor's expense.

**3.05.02. Responsibility of Contractor**

- A. When the Contractor requires stakes or marks as provided for in paragraph A, it shall clear and grub the area to be staked and then notify the Engineer of such requirements in a reasonable length of time in advance of starting operations that require such stakes or marks. In no event shall a notice of less than seven (7) Days be considered a reasonable length of time.
- B. Where construction operations require removal of the District's stakes or other survey marks, the Contractor shall reference such points in an approved manner. Survey stakes or marks established by the District shall be preserved by the Contractor until their removal is authorized. In case of their unauthorized destruction or removal by the Contractor's forces, they will be replaced at the Contractor's expense. Any cost to the District of replacing survey stakes or marks will be deducted from payments due the Contractor. Such cost will include a reasonable charge for use of District supplies, labor, and Equipment, plus overhead.
- C. The Contractor is solely responsible for the measurements and layout of the Project from the given survey control points and reference points provided by the District. Any questions with regard to interpretation of Project layout shall be resolved by the Engineer.

- D. The Contractor shall not remove or disturb survey monuments and permanent markers unless otherwise approved by the Engineer and not until the District has recorded and referenced the locations. The Contractor shall be charged at a reasonable rate for the restoration or replacement of survey monuments and permanent markers by the District.
- E. No survey monuments, permanent markers for the District right of way, or District survey control points shall be removed or disturbed until the Engineer has recorded the locations thereof and a permit for such removal has been received from the agency having jurisdiction. When the construction Work has been completed, the Contractor shall replace said monuments accurately in the locations as referenced by the Engineer at no cost to the District.
- F. If any marker or monument is destroyed by the Contractor without prior written approval of the Engineer, the Contractor shall be responsible for the accurate replacement of that marker or monument at no expense to the District by a Land Surveyor licensed by the State of California in accordance with the California Business and Professions Code Chapter 15, Land Surveyors, Section 8771.

**3.06. Changes in the Work**

- A. **Change Order:** A written document that changes the Contract and has been fully executed bilaterally by the District and Contractor that authorizes an addition, deletion, or revision in the Work; an adjustment in the Contract Price(s); and/or the Contract Time(s), including Milestone Completion dates or durations.
- B. **Directed Change Order (DCO):** The District's written order that is a Change Order unilaterally executed by the District to order additions, deletions, or revisions in the Contract Work. If deemed necessary and/or appropriate by the Engineer, the DCO will include an adjustment in the Contract Price(s) and/or in the Contract Time(s) and/or in other terms and conditions that the District, at its sole discretion, deems reasonable for the change.
- C. **Potential Change Order (PCO):** The District's written request to the Contractor for a proposal to perform PCO Work prior to the District's issuance of a Change Order or DCO. A PCO may also be created by the District to track disputed Work.

**3.06.01. Potential Change Orders and Change Orders**

- A. The District may at any time, or from time to time and without notice to the Contractor's surety, order additions, deletions, or revisions to the Work and/or to the Contract Time(s) and may request a proposal from the Contractor for a PCO for such additions, deletions, or revisions in the Work and/or in the Contract Time(s). Pursuant to Articles 3.07. Change in Contract Price(s) and 3.08. Change in Contract Time(s), the Contractor shall submit any requests the Contractor has for adjustments in the Contract Price(s) and/or in the Contract Time(s).

- B. Notwithstanding the time limits stated in Article 3.06.01. Potential Change Orders and Change Orders, upon receipt of such request, the Contractor shall furnish a detailed estimate of increase or decrease in costs and/or in time, together with cost and schedule breakdowns and other supporting data within the time specified in the request, but no later than 30 Days after receipt of such a request unless the Engineer allows additional response time. The Engineer shall review and respond in writing to the Contractor's estimate prior to proceeding with the Work.
- C. Changes in the Contract Price(s) shall be determined and paid in accordance with Article 3.07. Change in Contract Price(s). Changes in the Contract Time(s) shall be determined and adjusted in accordance with Article 3.08. Change in Contract Time(s).
- D. The District and the Contractor shall execute appropriate Change Orders covering:
  - 1. changes in the Work that are ordered by the District pursuant to paragraph "A" above;
  - 2. changes in the Contract Price(s) and/or Contract Time(s) that are agreed to by the parties; or
  - 3. any other changes agreed to by the parties.
- E. The Contractor shall not be entitled to an increase in the Contract Price(s) nor to an extension of the Contract Time(s) with respect to any Work performed that is not required by the Contract, except in the case of an emergency or in the case of uncovering Work as provided in Article 9.06.01. Inspection, paragraph H.

**3.06.02. Change Order Request**

- A. Should the District's Contract Document Clarifications (CDC) or other written directive, in the opinion of Contractor, materially exceed or change the requirements of the Contract Documents, the Contractor shall submit to the District a written Change Order Request (COR) within seven (7) Days of receipt of the CDCs or of other written directive.
- B. A COR shall reference the CDC or other written directive and the relevant Specifications and Drawings.
- C. A COR shall also include a cost proposal and/or time adjustment proposal as a good faith estimate of any additional compensation or time associated with the affected Work.
- D. Failure to submit a timely, documented COR shall constitute a waiver of any future claim for additional compensation or time relating to such Work.

**3.06.03. Directed Change Orders**

- A. In situations where (i) the Contractor fails to submit a proposal for a PCO within the time specified; or (ii) when the District and the Contractor cannot agree on the terms and conditions of a PCO within a reasonable amount of time as determined by District; or (iii) if, in the judgment of the Engineer, it is impracticable because of the nature of the change or for any other reason for the parties to determine and agree on the costs and schedule impacts before the change must be performed, the District has the right to issue to the Contractor a DCO signed by the District only, with compensation based on the Engineer's estimate of cost, time, and other impacts associated with performance of changes in the Work.
- B. A DCO may be issued by the District as a result of, but not limited to, any of the following conditions:
  - 1. Responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in Article 3.09. Differing Conditions.
  - 2. Responding to any damage to improvements of property or to an emergency affecting the safety of life or property as provided in Article 4.10. Preservation of Property.
  - 3. Utility relocation as provided in Article 4.25. Coordination With Utilities.
  - 4. Emergency work as provided in Article 4.10. Preservation of Property and in the Special Provisions.
  - 5. Protested Work under Article 3.11.01. Protest.
  - 6. PCO work.
- C. Upon receipt of a DCO, the Contractor shall immediately act upon the Work ordered by the District, all in accordance with the applicable terms and conditions of the Contract Documents.
- D. The District's issuance of a DCO is for the purpose of unilaterally modifying the Contract Work, and/or Contract Price(s), and/or Contract Time(s), as deemed necessary by the Engineer. The parties may subsequently negotiate mutually acceptable terms and conditions of a Change Order to replace the DCO, as provided in this Article.
- E. The Contractor may, at any time after the District's issuance of a DCO, furnish a detailed estimate of increases or decreases in costs and/or time, cost and schedule breakdowns, and references to relevant Contract Specifications in support of its position with regard to the unilateral directive.



- F. Should the Contractor disagree with the terms of the DCO, the Contractor may protest in accordance with Article 3.11.01. Protest. This action shall not delay the requirement to immediately act upon the Work as provided herein.

**3.06.04. Allowable Quantity Variations**

- A. General: Increases or decreases in the quantity of a Contract item of Work shall be determined by comparing the actual pay quantity of an item of Work with the approximate quantity in the listing of the Bid items contained in the Proposal.
1. If the actual pay quantity of an item of Work varies from the approximate quantity by 25 percent or less, payment shall be made for the actual quantity of Work performed at the Contract unit price listed in the Proposal.
  2. If the actual pay quantity of an item of Work varies from the approximate quantity by more than 25 percent, in the absence of an executed Contract Change Order or DCO specifying the compensation to be paid, the compensation payable to the Contractor shall be determined in accordance with this Article.
    - a. Increases of More Than 25 Percent: If the actual pay quantity of an item of Work exceeds the approximate quantity by more than 25 percent, the amount of Work in excess of 125 percent of the approximate quantity may be paid for by adjusting the Contract unit price, subject to the following conditions: (i) the Contractor can demonstrate to the satisfaction of the Engineer that an adjustment in the Contract unit price is warranted; and (ii) the adjusted unit prices are reasonable and approved by the Engineer. Such adjustment of the Contract unit price shall be the positive or negative difference between the Contract unit price and the actual unit cost of the total pay quantity of the item. At the sole option of the Engineer, the actual unit cost of the Work involved in such excess shall be determined in accordance with Article 3.07.01.G.2. (by mutual acceptance of a lump sum) or with Article 3.07.02. Cost of Extra Work (based on Time and Materials); such unit costs shall include an appropriate portion of the Contractor's allowable overhead and profit.
      - (1) If the cost of an item of Work includes Fixed Costs, the Fixed Costs shall be deemed to have been recovered by the Contractor by the payments made for 125 percent of the approximate quantity at the Contract unit price for the item; in computing the actual unit cost, the Fixed Costs shall be excluded.
      - (2) When the compensation payable for the quantity of Work performed in excess of 125 percent of the approximate quantity is less than \$5,000 at the Contract unit price, no adjustment in the Contract unit price shall be made unless

requested in writing by the Contractor within 14 Days from the date the Contractor became aware, or should have reasonably become aware, of the increase in quantity.

- b. Decreases of More Than 25 Percent: If the actual pay quantity of an item of Work is less than 75 percent of the approximate quantity, an adjustment in unit price shall not be made unless the Contractor makes a request in writing within 14 Days from the date the Contractor became aware, or should have reasonably become aware, of the decrease in quantity. If the Contractor makes a request, the actual pay quantity of this item of Work performed may be paid for by adjusting the Contract unit price, subject to the following conditions: (i) the Contractor can demonstrate to the satisfaction of the Engineer that an adjustment in Contract unit price is warranted; and (ii) the adjusted unit prices are reasonable and approved by the Engineer. Such adjustment of the Contract unit price shall be the positive or negative difference between the Contract unit price and the actual unit cost of the total pay quantity of the item, including Fixed Costs. At the sole option of the Engineer, payment for the actual quantity of Work shall be made by mutual acceptance of a lump sum amount or cost of Work based on Time and Materials; such unit costs shall include an appropriate portion of the Contractor's allowable overhead and profit.

- (1) Payment for the actual pay quantity of such item of Work shall in no case exceed the payment that would have been made for the performance of 75 percent of the approximate quantity of such item at the Contract unit price.

- B. Eliminated Items: If any Contract item of the Work is eliminated in its entirety, the Contract Sum shall be reduced by the amount bid for that Bid item, including overhead and profit. Payment shall be made to the Contractor for the actual cost incurred in connection with the eliminated Contract item if incurred prior to the date of notification in writing by the Engineer of such elimination.

- 1. If acceptable Material is ordered by the Contractor for an eliminated Contract item prior to the date of notification of the elimination by the Engineer, and if orders for the Material cannot be canceled, payment for the Material shall be made at the actual cost to the Contractor. In this case, the Material shall become the property of the District. If the Material can be returned to the vendor and if the Engineer so directs, the Material shall be returned, and the Contractor shall be paid for the actual cost for returning the Material.
  - 2. The actual costs to be paid by the District to the Contractor in accordance with this Article will be computed in accordance with Article 3.07.02. Cost of Extra Work, which shall include an allowance for overhead and profit.
  - 3. In the event the Contractor and the District are unable to agree on the credit amount due, the District shall unilaterally determine the amount.

- C. Supplemental Contract Items: Items noted as "Supplemental" in the Proposal may be deleted entirely or in part at the sole discretion of the District. The provisions of Articles associated with Allowable Quantity Variations or Eliminated Items shall not apply to Supplemental Contract Items.

**3.07. Change in Contract Price(s)****3.07.01. General**

- A. The Contract Price(s) constitutes the total compensation payable to the Contractor for performing the Work. All duties, responsibilities, and obligations assigned to or undertaken by the Contractor to perform the Work shall be at the Contractor's expense without a change in the Contract Price(s).
- B. The Contract Price(s) shall only be changed by a fully executed Change Order or by a DCO. Any requests by the Contractor for an increase or decrease in the Contract Price(s) shall be based on a written Change Order Request (COR) delivered promptly by the Contractor to the Engineer by no later than seven (7) Days after the date of the occurrence of the event giving rise to the request and stating the general nature of the request, unless the time is modified in the Special Provisions.
- C. The COR by the Contractor shall be substantiated within 30 Days after submittal of the written notice with a cost proposal quantifying the costs and schedule impacts associated with the request with supporting data, unless the Engineer allows an additional period of time for the Contractor to ascertain more accurate data in support of the request, or unless the time is modified in the Special Provisions.
- D. No request by the Contractor for an adjustment in the Contract Price(s) shall be valid if not submitted timely in accordance with this Article; failure to submit a timely and fully documented request shall constitute a waiver of any future requests or Claims for additional compensation or a time extension related to such Work.
- E. Any request for an adjustment in the Contract Price(s) and/or in the Contract Time(s) shall include, but shall not be limited to:
  - 1. a written description of the event or issue or combination of events/issues that gave rise to the request, including and without limitation, the start date of the event or events and the anticipated or actual finish date;
  - 2. a written description of the legal basis of the request with specific references to the Contract provisions upon which the Contractor relies;
  - 3. an identification of the Work (e.g., activities with the current updated Detailed Progress Schedule and similar information) affected by the event(s);

4. relevant correspondence and other information related to and supporting entitlement;
  5. written documentation pursuant to Article 3.07.02. Cost of Extra Work through 3.07.05. Compensation for Time Extension related to pricing of the requested change;
  6. a written description of the effect of the request on the progress of the Work;
  7. a detailed schedule analysis based on the most current Detailed Progress Schedule that identifies the critical and/or controlling portions of the Work impacted by the change and the anticipated dates of the impact;
  8. the specific number of Days of time extension requested for any impacted Contract Time(s);
  9. a written proposal for any additional compensation being requested that would fully compensate the Contractor for all costs of acceleration of the related Work needed to overcome the associated Delay, if any; and
  10. a written statement from the Contractor that the proposed adjustment is the entire adjustment of the Contract Price(s) and/or of the Contract Time(s).
- F. The Engineer shall review the Contractor's COR within 14 Days after receipt of the cost proposal and supporting documents, and render its determination in writing, unless the time is modified in the Special Provisions, Work, and Contract Time. If the Engineer requires a longer period for its determination, it will provide written notice to the Contractor within the initial 14-Day period. If the Engineer does not issue a determination within the initial or extended period, the request shall be deemed rejected and the provisions of Article 3.11. Disputes shall apply.
- G. The value of any Work covered by a PCO, Change Order, DCO, or any request for an increase or decrease in the Contract Price(s) shall be determined in one of the following ways:
1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved; or
  2. By mutual acceptance of a lump sum, which shall follow the basic pricing rules set forth under Article 3.07.02. Cost of Extra Work and include an allowance for overhead and profit in accordance with Article 3.07.02.G. Contractor's Fee; unless otherwise approved by the Engineer; or
  3. On the basis of the cost of Work (determined as provided in Articles 3.07.02. Cost of Extra Work and in 3.07.04. Special Services) plus a Contractor's fee for overhead and profit (determined as provided in

Article 3.07.02. Cost of Extra Work). For this payment basis, the Engineer will direct the Contractor to proceed on a Time-and-Materials basis and may also establish a Not-to-Exceed (NTE) budget for the change.

**3.07.02. Cost of Extra Work**

- A. The term “cost of extra Work” means the sum of all direct costs necessarily incurred and paid by the Contractor or estimated to be incurred and paid by the Contractor for labor, Materials, and Equipment in the proper performance of Work, plus a markup for overhead and profit as defined in this Article. Except as otherwise may be agreed to in writing by the District, such costs shall be in amounts no higher than those prevailing in the locality of the Project.
- B. Labor: The direct cost of labor used in performing Work by the Contractor, a Subcontractor, or by other forces will be the sum of the following:
  - 1. The actual or estimated wages paid plus any employer payments to or on behalf of workers for fringe benefits, including health and welfare, pension, vacation, and similar purposes.
  - 2. There shall be added to the actual or estimated wages as defined above a percentage set forth in the latest “Labor Surcharge and Equipment Rental Rates” in use by the California State Department of Transportation, which is in effect on the date upon which the Work is accomplished. This percentage shall constitute full compensation for all payments imposed by State and Federal laws, including, but not limited to, workers’ compensation insurance and Social Security payments.
  - 3. The amount paid or estimated to be paid for subsistence and travel required by collective bargaining agreements.
  - 4. For Equipment operators, payment for the actual or estimated cost of labor and subsistence or travel allowance shall be made at the rates paid, or estimated to be paid, by the Contractor to other workers operating similar Equipment already on the Work, or in the absence of such labor, established by collective bargaining agreements for the type of workers and location of the extra Work, whether or not the operator is actually covered by such an agreement. A labor surcharge shall be added to the cost of labor described herein in accordance with the provisions in this Article, which surcharge shall constitute full compensation for payments imposed by State and Federal laws, and all other payments made to on behalf of workers other than actual or estimated wages.
- C. Materials: The direct cost of Materials used or to be used in performing Work shall be the actual or estimated cost to the purchaser, including sales tax, whether the Contractor or a Subcontractor, from the Supplier thereof, except as the following are applicable:

1. Trade discounts available to the purchaser shall be credited to the District notwithstanding that such discounts may not have been taken by the Contractor.
  2. For Materials secured other than by a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid, or estimated to be paid, to the actual Supplier as determined by the Engineer. Markup, except for actual or estimated costs incurred in the handling of such Materials, shall not be allowed.
  3. Payment for Materials from sources owned wholly or in part by the purchaser shall not exceed the price paid, or estimated to be paid, by the purchaser for similar Materials from said sources on extra Work items or the current wholesale price for such Materials delivered to the worksite, whichever price is lower.
  4. The Contractor is responsible for and shall not be compensated for any increases in Material costs beyond those included in its Contract Price(s), including, but not limited to, sudden market changes or unexpected Material price increases.
  5. If, in the opinion of the Engineer, the estimated or actual cost of Materials is excessive or the Contractor does not furnish satisfactory evidence of the cost of such Material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned delivered to the worksite, less any trade discount. The District reserves the right to furnish Material for the extra Work; no Claim shall be made by the Contractor for costs and profit on such Material.
- D. Equipment: The Contractor shall be paid for the use of Equipment at the rental rate listed for such Equipment specified in the current edition of the Department of Transportation publication entitled, *Labor Surcharge and Equipment Rental Rates*, which is in effect on the date upon which the Work is accomplished. Such rental rates shall be used to compute payments for Equipment whether the Equipment is under the Contractor's control through direct ownership, leasing, renting, or under another method of acquisition. The rental rate to be applied for use of each item of Equipment shall be the rate resulting in the least total cost to the District for the total period of use. If it is deemed necessary by the Contractor to use Equipment not listed in the foregoing publication, an equitable rental rate for the Equipment will be established by the Engineer. The Contractor shall furnish cost data, which might assist the Engineer in establishing the rental rate.
1. The rental rates paid, or estimated to be paid, as above provided shall include the cost of fuel, oil, lubrication supplies, small tools, necessary attachments, repairs, and maintenance of all kinds; depreciation, storage, insurance, and all incidentals, unless the Equipment is idle due to a Delay. Operators of Equipment will be separately paid for as provided in paragraph 4 of Article 3.07.02.B. Labor.

2. All Equipment shall be in good working condition and suitable for the purpose for which the Equipment is to be used.
  3. Before construction Equipment is used on the extra Work, the Contractor shall plainly stencil or stamp an identifying number thereon at a conspicuous location and shall furnish to the Engineer, in duplicate, a description of the Equipment and its identifying number.
  4. Unless otherwise specified, manufacturer ratings and manufacturer-approved modifications shall be used to classify Equipment to determine applicable rental rates. Equipment that has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.
  5. Individual pieces of Equipment or tools having a replacement value of \$500 or less, whether or not consumed by use, shall be considered to be small tools; no payment shall be made.
  6. Compensation for idle time of Equipment shall include the ownership costs only, not including operating costs, in accordance with the following:
    - a. The Equipment rental rate shall be based on the delay factor in the edition of the Department of Transportation's publication entitled, *Labor Surcharge and Equipment Rental Rates*, in effect on the date the Work is accomplished.
    - b. Daily number of payable hours equals the normal working hours during the delay, not to exceed eight (8) hours per Day or 40 hours per week.
    - c. Delay Days exclude nonworking Days.
    - d. Markups are not added.
- E. Owner-Operated Equipment: When owner-operated Equipment is used, or anticipated to be used, to perform Work and is to be paid for as extra Work, the Contractor shall be paid for the Equipment and for the operator as follows:
1. Payment for the Equipment shall be made in accordance with the provisions in Contractor's Article 3.07.02.D. Equipment.
  2. Payment for the cost of labor and subsistence or travel allowance shall be made at the rates paid, or estimated to be paid, by the Contractor to other workers operating similar Equipment already on the Project, or, in the absence of such other workers, at the rates for such labor established by collective bargaining agreement for the type of worker and location of the Work, whether or not the owner-operator is actually covered by such an agreement. A labor surcharge shall be added to the cost of labor

described herein in accordance with the provisions in paragraph 2 of Article 3.07.02.B. Labor.

3. Markup for Equipment rental and labor as provided in Article 3.07.02.G. Contractor's Fee shall be added to the direct cost of Equipment rental and labor, computed as provided herein.

F. Equipment Time: The rental time to be paid, or estimated to be paid, for Equipment on the Work shall be the time the Equipment is in productive operation on the Work being performed and shall include the time required to move the Equipment to the new location and return it to the original location or to another location, requiring no more time than that required to return it to its original location. Moving time shall not be paid if the Equipment is used on Work other than the extra Work. Loading and transporting costs shall be allowed, in lieu of moving time, when the Equipment is moved by means other than by its own power. No payment shall be made for loading and transporting costs when the Equipment is used at the site of the extra Work on other than the extra Work. The following shall be used in computing the rental time of Equipment on the Work:

1. When hourly rates are listed, any part of an hour less than 30 minutes of operation shall be considered to be a half hour of operation, and any part of an hour in excess of 30 minutes will be considered one (1) hour of operation.
2. When daily rates are listed, operation for any part of a day less than four (4) hours shall be considered to be a half Day of operation.
3. Rental time will not be allowed while Equipment is inoperative due to breakdowns or due to Contractor-caused Delays.

G. Contractor's Fee

- a. Work ordered on the basis of Time and Materials or forward-priced lump sum will be paid for at the estimated or actual and necessary cost as determined by the Engineer, plus allowances for overhead and profit; said allowances shall constitute the Contractor's Fee. For extra Work involving a combination of increases and decreases in the Work, the estimated or actual and necessary cost will be the arithmetic sum of the additive and deductive costs.
- b. To the total of the direct costs computed as provided above, there will be added a markup for overhead and profit as specified below. The markup shall constitute full compensation for all direct and indirect overhead costs and profit, which shall be deemed to include all items of expense not specifically listed above as direct costs. No separate allowance or itemization for overhead costs shall be allowed. The following list, though not intended to be comprehensive, indicates the types of costs that are



included in the markup for overhead and profit for all Change Orders, including Time-and-Material Work:

- i. Field and home office personnel, including, but not limited to, principals, project managers, superintendents, supervisory foremen, estimators, project engineers, detailers, draftspersons, schedulers, consultants, watchpersons, payroll clerks, administrative assistants, and secretaries.
  - ii. All field and home office expenses, including, but not limited to, field trailers, parking, storage sheds, office equipment and supplies, telephone service at the Site, long-distance telephone calls, fax machines, computers and software, Internet and e-mail services, temporary utilities, sanitary facilities and services, janitorial services, small tools and Equipment with a cost under \$500 each, portable scaffolding, blocking, shores, appliances, job vehicles, security and fencing, conformance to all regulatory requirements, including compliance with safety regulations, safety programs and meetings, cartage, warranties, record documents, and all related maintenance costs.
  - iii. Administrative functions, including, but not limited to, reviewing, coordinating, distributing, processing, posting, recording, estimating, negotiating, scheduling, schedule updating and revising, expediting, surveying, engineering, drawing, detailing, revising shop Drawings, preparing record Drawings, carting, cleaning, protecting the Work, and other incidental Work related to the Change Order.
  - iv. All other costs and taxes required to be paid, but not included under direct costs as defined in this Article.
- c. The allowance for overhead and profit shall be made in accordance with the following schedule:

<b>Element of the Work</b>	<b>Overhead and Profit Allowance</b>
Labor	33 percent
Materials	15 percent
Equipment	15 percent

- d. Subcontractor Markup: Labor, Materials, and Equipment may be furnished by the Contractor or by a Subcontractor on behalf of the Contractor. When all or any part of the extra Work is performed by a Subcontractor, the allowance specified in the above subparagraph "c" shall only be applied to the labor, Material, and Equipment costs of the Subcontractors to which the Contractor may add no more than five (5) percent of the Subcontractor's total cost for the extra Work. In no case shall the sum of the individual markups applied to a Change Order

exceed ten (10) percent regardless of the number of Subcontractor tiers involved in performing the Work.

- e. Bond and Insurance: Only the actual cost of bond and insurance premiums required because of the Change Order, with no markup for overhead and profit, will be allowed.

### **3.07.03. Time-and-Materials Work**

- A. If an NTE budget is established by the Engineer for Time-and-Material Work, the Contractor shall notify the Engineer when the cumulative costs incurred by the Contractor for Time-and-Material Work equal 80 percent of the preestablished budget. The Contractor may not be compensated for such Work that exceeds the NTE budget if the Contractor fails to provide the required notice before exceeding 80 percent of the established budget.
- B. If Work being performed on a Time-and-Material basis is expected to take more than one (1) month, the Engineer may, in its sole discretion, issue an allowance Change Order to allow timely payment to the Contractor for undisputed Work performed. The dollar value of the Change Order shall be an allowance amount equal to or greater than the NTE. Any amount remaining after all Time-and-Materials sheets are priced shall revert to the District.
- C. Cost of Work Documentation: For Time-and-Material Work, the Contractor shall furnish the Engineer extra work reports on a daily basis covering the direct costs of labor and Materials and charges for Equipment whether furnished by the Contractor, Subcontractor, or by other forces. The District shall provide the extra daily work report forms to the Contractor. The Contractor or an authorized agent shall sign each daily extra work report. The daily extra work report shall provide names and classifications of workers and hours worked; size, type, and identification number of Equipment; and the hours operated. Copies of certified payrolls and statements of fringe benefits shall substantiate labor charges. Valid copies of vendor invoices shall substantiate Material charges.
- D. The Engineer shall make any necessary adjustments. When these reports are agreed upon and signed by both parties, they shall become the basis of payment for the undisputed Work performed but shall not preclude subsequent adjustment based on a later audit.
- E. The Contractor shall inform the Engineer when extra Work will begin so that the District inspector can concur with the daily extra work reports. Failure to conform to these requirements may impact the Contractor's ability to receive proper compensation.
- F. The Contractor shall price and submit to the Engineer in both electronic format and in hard copy a native Microsoft Excel-based cost summary of the daily extra work reports on no less than a weekly basis. This summary report shall total all costs incurred to date and compare them to the NTE amount with a percent-spent-to-date amount prominently displayed. The Contractor shall be fully

responsible for tracking the costs and for notifying the Engineer when the costs exceed 80 percent of the NTE value. The summary report shall not be considered a substitute for the notice required in this Section.

**3.07.04. Special Services**

- A. Special services are defined as that Work characterized by extraordinary complexity, sophistication, or innovations, or a combination of the foregoing attributes that are unique to the construction industry. The following may be considered by the Engineer in reviewing or approving estimates for payment for special services:
  - 1. When the Engineer and the Contractor, by agreement, determine that a special service is required that cannot be performed by the forces of the Contractor or by those of any of its Subcontractors, the special service shall be performed by an entity especially skilled in the Work to be performed. After validation of invoices and determination of market values by the Engineer, invoices for special services based upon the current fair market value thereof may be accepted without complete itemization of labor, Materials, and Equipment rental costs if backup provided is acceptable to the Engineer.
  - 2. When the Contractor is required to perform Work necessitating special fabrication or machining process in a fabrication or a machine shop facility away from the job site, charges for that portion of the Work performed at the off-site facility may, by agreement, be accepted as a special service, and accordingly, invoices for the Work may be accepted without detailed itemization at the Engineer's discretion.
- B. All invoices for special services shall be adjusted by deducting all trade discounts offered or available, whether the discounts were taken or not. In lieu of the allowances for overhead and profit on labor, Materials, and Equipment specified herein, a single allowance of ten (10) percent will be added to invoices for special services.

**3.07.05. Compensation for Time Extensions**

- A. Adjustments in compensation for adjustments in Contract Time(s) shall be allowed only for causes in Article 3.08.01. Change in Contract Time(s), General, paragraphs "E.1." through "E.5." computed in accordance with Article 3.07.02. Cost of Extra Work. No adjustments in compensation shall be allowed when District-caused Delays to a Controlling Item of Work and Contractor-caused Delays to a Controlling Item of Work occur concurrently or for causes stated in Article 3.08. Change in Contract Time(s).

**3.08. Change in Contract Time(s)****3.08.01. General**

- A. The Contract Time(s) for the Contract is specified in the Special Provisions. The Contract Time(s) shall only be changed or adjusted by a fully executed Change Order or by a DCO.
- B. Notice and Substantiation: Any request for a change in the Contract Time(s) shall comply with the notice and substantiation requirements shown in Article 3.07. Change in Contract Price(s). No request for an adjustment in the Contract Time(s) will be valid if not submitted in accordance with the requirements of this Article.
- C. The Contract Time(s) shall only be extended when a Delay occurs that impacts a Controlling Item of Work as shown in the most recently accepted Detailed Progress Schedule. Time extensions shall be allowed only if the cause is beyond the control and without the fault or negligence of the Contractor. Time extensions may also be allowed when District-caused delays to a Controlling Item of Work and Contractor-caused Delays to a Controlling Item of Work occur concurrently. The Contractor shall be notified if the Engineer determines that a time extension is not justified.
- D. Types of Delays are defined below:
  - 1. Compensable Delay: An Excusable Delay for which the Contractor is entitled to receive additional compensation for delay-related costs if a) the delay was caused by the District or within its control or responsibility; b) the Delay results in additional costs incurred by the Contractor; and c) the Contractor has not assumed the risk of the Delay.
  - 2. Concurrent Delay: Two or more independent causes of Delay to the Contractor's performance of Work that meet all of the following criteria: a) the Delays occur at the same time during all or a portion of the delay period being considered; b) the Delays directly prevent the Contractor from performing a Controlling Item of Work; c) each Delay would have delayed the Contractor's performance of a Controlling Item of Work even in the absence of any of the other Delays;
  - 3. Excusable Delay: A Delay to the completion of a specified Contract Time(s) that is due to causes that are unforeseeable and beyond the control and responsibility of the Contractor for which a time extension may be granted.
  - 4. Inexcusable Delay: A Delay to the completion of a specified Contract Time(s) that was reasonably foreseeable or within the control and responsibility of the Contractor for which no compensation or time extension will be granted.

5. Non-compensable Delay: An Excusable Delay for which the Contractor may be entitled to an extension of time without additional compensation for delay-related costs.
- E. The Contract Time(s) shall be extended in an amount equal to time lost due to Excusable Delays if a request is made thereof as provided in this Article. An extension in Contract Time(s) shall only be granted for Days on which the Contractor is prevented from proceeding with at least 75 percent of the normal labor and Equipment force actually engaged on the Work by occurrences or conditions resulting immediately therefrom that impact a Controlling Item of Work as determined by the Engineer. Causes of such Delays shall include:
1. changes;
  2. failure of the District to furnish access, right of way, completed facilities of related projects, Drawings, Material, Equipment, or services for which the District is responsible;
  3. survey error by the District;
  4. suspension of Work pursuant to Article 5.06. Temporary Suspension of Work, paragraph C;
  5. differing site conditions;
  6. occurrences of a severe and unusual nature, including, but not limited to, acts of God, wars, riots, insurrections, fires, and excusable inclement weather. An "act of God" is defined as an earthquake, flood, cloudburst, cyclone, or other cataclysmic phenomena of nature beyond the power of the Contractor to foresee or to make preparation for in defense against, but does not include ordinary inclement weather; and
  7. act of the public enemy, act of another governmental entity, act of a public utility or other third party outside the control of the District, epidemic, quarantine restriction, freight embargo, strike, or labor dispute. A delay to a Subcontractor or Supplier due to the above circumstances will be taken into consideration for extensions to the time of completion.

**3.08.02. Inclement Weather**

- A. Inclement weather is any weather condition, the duration of which varies in excess of the average conditions expected, that is unusual for the particular time and place where the Work is to be performed or that could not have been reasonably anticipated by the Contractor as provided for in the Special Provisions.
- B. The Contract Time(s) shall only be extended for Days in excess of the number of Days of inclement weather where the Contractor is prevented by inclement weather, or by conditions resulting immediately therefrom, from proceeding with

at least 75 percent of the normal labor and Equipment force engaged on Controlling Items of Work as shown on the current, updated, and accepted Detailed Progress Schedule.

- C. Should the Contractor prepare to begin Work at the regular starting time at the beginning of any regular work shift on any Day on which inclement weather, or the conditions resulting from the weather, prevents Work from beginning at the usual starting time and the crew is dismissed as a result thereof, the Contractor shall be entitled to a one (1)-Day extension, whether or not conditions change thereafter during that Day and the major portion of the Day could be considered suitable for such construction operations.
- D. The Contractor shall include a calendar in all of its Progress Schedules that includes nonworking Days for the number of inclement weather Days specified in the Special Provisions. This calendar shall be used for all weather-sensitive Work.
- E. No extension in the Contract Time(s) due to inclement weather shall be considered until after the number of Days of inclement weather Days specified in the Special Provisions has been reached. No reduction in Contract Time(s) shall be made if the number of Days of inclement weather is not reached.
- F. The Contractor shall not be entitled to additional compensation for Delays caused by inclement weather.

### **3.09. Differing Conditions**

- A. If any Work involves digging trenches or other excavations below the surface, the Contractor shall promptly, and before the following conditions are disturbed, notify the District in writing of any:
  - 1. Material that the Contractor believes may be a Regulated Material that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law;
  - 2. subsurface or latent physical conditions at the site differing from those indicated in this Contract (Type I Differing Site Condition); and
  - 3. unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered, and generally recognized as inherent in Work of the character provided for in the Contract (Type II Differing Site Condition).
- B. The Contractor's written notice shall inform the District as to how such conditions affect its Work and shall recommend methods to overcome such conditions.
- C. Differing Conditions shall not include:

- B. It is the intention of this Article that disputes between parties arising under and by virtue of the Contract be brought to the attention of the Engineer at the earliest possible time in order that matters may be resolved, if possible, or other appropriate action promptly taken. Disputes are divided into four categories: (i) protest, (ii) notice, (iii) potential Claim, and (iv) Claim. During the course of the Project and up to receiving the proposed final estimate, the Contractor must submit a Contract dispute in the form of a written notice, protest, potential Claim, or Claim to the Engineer.
- C. Any disputes from Subcontractors or Suppliers that the Contractor passes through to the District for review and consideration shall be certified in the same manner the Contractor would certify its own disputes.

**3.11.01. Protest**

- A. If the Contractor considers any Work demanded to be outside of the requirements of the Contract, or considers any records or ruling or act or omission of the Engineer to be unfair, the Contractor shall immediately, upon such Work being demanded or such record or ruling being made, ask in writing for written instructions or decisions, whereupon the Contractor shall proceed without delay to perform the Work or to conform to the record or ruling and, within seven (7) Days after date of receipt of the written instructions or decisions, shall file a written protest with the Engineer stating clearly in detail the basis of the protest. Except for such protests as are made of record in the manner herein specified and within the time limit stated, the records, rulings, instructions, decisions, and acts or omissions of the Engineer shall be final and conclusive. Instructions and decisions of the Engineer contained in letters transmitting Drawings to the Contractor shall be considered as written instructions and decisions subject to protest as herein provided.

**3.11.02. Notice of Potential Claims**

- A. The Contractor is not entitled to additional compensation for any cause unless the Contractor submits to the District a written Notice of Potential Claim as hereinafter specified.
- B. The written Notice of Potential Claim must set forth the reasons for which the Contractor believes additional compensation and/or adjustments in the specified Contract Time(s) will or may be due, the nature of the costs and/or time involved, and, insofar as possible, the amount of the potential Claim. This notice as above required must have been submitted to the District before the Contractor performs the Work giving rise to the potential Claim for additional compensation and/or time, if based on an act or failure to act by the District, or in all other cases, within seven (7) Days after the happening of the event, thing, or occurrence giving rise to the potential Claim.
- C. The Notice of Potential Claim shall be certified as required in Article 3.12. Claims.

- D. Compliance with the foregoing shall not be a prerequisite to any Claim that is based on differences in measurement or errors of computations as to Contract quantities.

**3.12. Claims**

- A. Claims by the Contractor must be submitted to the Engineer before the date of final payment. The Claim shall relate directly to the circumstances addressed in the Notice of Potential Claim and may not raise new issues or circumstances that were not identified in the Notice of Potential Claim. Claims shall be in writing, shall specify the basis for each Claim, shall refer to the applicable provision or provisions of the Contract, and shall show the method of computation and the actual amount claimed. The Claim shall include documents necessary to substantiate the Claim and to establish liability, causation, and damages. All other factual data, including documentation of actual costs pertaining to that Claim, shall be submitted. Each issue contained in a Claim must include documentation, including background, chronology, Contractor's position, supporting documentation of merit, supporting documentation of damages, schedules (if appropriate), and productivity exhibits (if appropriate). The Claim shall clearly state that it is a Claim being submitted under this Article. Failure to submit a written Claim within the 30-Day period waives any right to recover compensation or to an extension in the Contract Time(s) due to the issues referenced in the Notice of Potential Claim. In addition to the foregoing, to substantiate any Claim, the Contractor shall provide the information required by Article 3.07. Change in Contract Price(s).
- B. Pricing of Claims shall be consistent and compliant with the requirements herein for adjustments in the Contract Price(s) and adjustments in the Contract Time(s).
- C. Claims must be certified using the following language:

I, \_\_\_\_\_, BEING THE \_\_\_\_\_ (MUST BE AN OFFICER) OF \_\_\_\_\_ (CONTRACTOR), DECLARE UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA, AND DO PERSONALLY CERTIFY AND ATTEST THAT: I HAVE THOROUGHLY REVIEWED THE ATTACHED CLAIM FOR ADDITIONAL COMPENSATION AND/OR EXTENSION OF TIME FOR WORK PERFORMED BY THE CONTRACTOR AND/OR ANY SUBCONTRACTOR CLAIMS THAT ARE BEING PASSED THROUGH TO THE DISTRICT, AND KNOW ITS CONTENTS, AND SAID CLAIM IS TRUTHFUL AND ACCURATE; THAT THE AMOUNT REQUESTED ACCURATELY REFLECTS THE CONTRACT ADJUSTMENT FOR WHICH THE DISTRICT IS LIABLE; AND, FURTHER, THAT I HAVE REVIEWED AND AM FAMILIAR WITH BOTH CALIFORNIA PENAL CODE SECTION 72 AND CALIFORNIA GOVERNMENT CODE SECTION 12650, ET SEQ., PERTAINING TO FALSE CLAIMS, AND FURTHER KNOW AND UNDERSTAND THAT SUBMISSION OR CERTIFICATION OF A FALSE CLAIM MAY LEAD TO FINES, IMPRISONMENT, AND/OR OTHER SEVERE LEGAL CONSEQUENCES.



- D. The District, or its authorized representatives, shall have access, upon reasonable notice during normal business hours, to Contractor and Subcontractor books, documents, and accounting records, including, but not limited to, Bid worksheets, Bids, Subcontractor Bids and proposals, estimates, cost accounting data, accounting records, payroll records, time sheets, canceled checks, profit and loss statements, balance sheets, Project correspondence, including, but not limited to, all correspondence between the Contractor and its sureties and Subcontractors/vendors, Project files, scheduling information, and other records of the Contractor and all Subcontractors directly or indirectly pertinent to the Work of the Project; original as well as changed and claimed extra Work to verify and evaluate the accuracy of cost and pricing data submitted with any Claim for which additional compensation has been requested or Notice of Potential Claim has been tendered. Such access shall include the right to examine and audit such records and make excerpts, transcriptions, and photocopies at the District's cost.
- E. The parties agree that in the event the Contractor or any Subcontractor fails to comply with this Article, the Claim will not be considered by the District. The Contractor agrees to impose upon its Subcontractors by appropriate subcontract provisions the obligations of this Article of the Standard Provisions.
- F. No Claim shall be considered where there has been a failure to comply with the requirements relative to protest and Notice of Potential Claim as written elsewhere in these Specifications.
- G. The presentation of a Claim shall be an express condition precedent to the Contractor's recourse to (i) informal conference; (ii) nonbinding mediation; and (iii) judicial arbitration to resolve disputes on construction Claims of three hundred seventy-five thousand dollars (\$375,000) or less or court action upon the Contract for Claims in excess of three hundred seventy-five thousand dollars (\$375,000) in compliance with Public Contract Code Section 20104 et seq.

**3.12.01. Claims Less Than Fifty Thousand Dollars**

- A. For Claims less than fifty thousand dollars (\$50,000), the Engineer shall respond in writing to any written Claim within 45 Days of receipt of the Claim or may request in writing within 30 Days of receipt of the Claim any additional documentation supporting the Claim or relating to defenses or Claims the District may have against the Contractor.
- B. If additional information is thereafter required, it shall be requested and provided pursuant to this Article upon mutual agreement of the Engineer and of the Contractor.
- C. The Engineer's written response to the Claim, as further documented, shall be submitted to the Contractor within 15 Days after receipt of further documentation or within a period of time no greater than that taken by the Contractor in producing the additional information, whichever is greater.

**3.12.02. Claims from Fifty Thousand Dollars to Three Hundred and Seventy-Five Thousand Dollars**

- A. For Claims greater than or equal to fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the Engineer shall respond in writing to any written Claims within 60 Days of receipt of the Claim or may request in writing within 30 Days of receipt of the Claim any additional documentation supporting the Claim or relating to defenses or Claims the District may have against the Contractor.
- B. If additional information is thereafter required, it shall be requested and provided pursuant to this Article upon mutual agreement of the Engineer and of the Contractor.
- C. The Engineer's written response to the Claims, as further documented, shall be submitted to the Contractor within 30 Days after receipt of further documentation or within a period of time no greater than that taken by the Contractor in producing the additional information or requested documentation, whichever is greater.

**3.12.03. Informal Conferences**

- A. If the Contractor disputes the Engineer's written response or if the Engineer fails to respond within the time prescribed, the Contractor may so notify the Engineer in writing either within 15 Days of receipt of the Engineer's response, or within 15 Days of the Engineer's failure to respond within the time prescribed respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon such demand, the Engineer shall schedule a meet-and-confer conference within 30 Days for settlement of the dispute.
- B. If, following the meet-and-confer conference, the Claim or any portion remains in dispute, the Contractor may file a Claim pursuant to California Government Code, Title 1, Division 3.6, Part 3, Chapter 1 commencing with Section 900 and Chapter 2 commencing with Section 910. For purposes of those provisions, the running of the period of time within which a Claim must be filed shall be tolled from the time the Contractor submits its written Claim until the time the Claim is denied, including any period of time utilized by the meet-and-confer process conference.

**3.12.04. Civil Actions**

- A. The following procedures are established for all civil actions filed to resolve Claims:
  - 1. Within 60 Days, but no earlier than 30 Days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 Days by both

parties of a disinterested third person as mediator, shall be commenced within 30 Days of the submittal, and shall be concluded within 15 Days from the commencement of the mediation unless a time requirement is extended upon a good-cause showing to the court.

2. If the matter remains in dispute, the parties agree to resolve their dispute by binding judicial arbitration pursuant to the Local Civil Rules of the County of Santa Clara Superior Court; notwithstanding, anything in such Local Civil Rules, the parties agree that the Civil Discovery Act of 1986 (Code of Civil Procedure, Title 3, Part 4, Chapter 3, Article 3 commencing with Section 2016 of Chapter 3 of Title 3 of Part 4 of Code of Civil Procedure) shall apply to any proceeding brought under this subdivision.
- B. In addition to the Code of Civil Procedure, Part 3, Title 3, Chapter 2.5 commencing with Section 1141.10, (i) arbitrators shall, when possible, be experienced in construction law; and (ii) any party appealing an arbitration award who does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, also pay the attorney's fees on appeal of the other party.

### **3.13. Dispute Review Board**

- A. When specified in the Special Provisions that a Dispute Review Board (DRB) process is required, the DRB process shall be in accordance with these Specification Provisions.

#### **3.13.01. General**

- A. A DRB is to assist in and facilitate the avoidance and timely, impartial resolution of disputes.
- B. All disputes referred to the DRB shall be subject to the dispute resolution process herein described as a condition precedent to initiating a subsequent dispute resolution process, such as arbitration or litigation, for that dispute.
- C. Except as explicitly otherwise provided, all disputes that are actionable under the provisions of the prime Contract between the District and the Contractor may be referred to the DRB.
- D. The DRB shall be utilized when dispute or potential Claim resolution at the Project level is unsuccessful. The DRB shall function until the Day of Acceptance of the Work by the District Board of Directors, at which time the work of the DRB will cease except for completion of unfinished dispute hearings and reports.
- E. The Contractor shall include in all subcontracts that Subcontractors and Suppliers of any tier (i) agree to submit Subcontractor Claims to the Contractor in a proper form and in sufficient time to allow processing by the Contractor in conformance with the DRB resolution specifications; (ii) agree to be bound by the

1. all that is indicated or reasonably interpreted from the Contract Documents or reference documents;
  2. all that could be seen on the Project site;
  3. conditions that are materially similar to or characteristically the same as those indicated or described in the Contract Documents or reference documents; and
  4. conditions where the location of a building component is in the proximity where indicated in or reasonably interpreted from the Contract Documents or reference documents.
- D. The District will promptly investigate the condition. If it finds that the conditions do materially so differ or do involve Regulated Material and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work, the District may issue a Change Order or a DCO under the procedures described in this Contract. For Regulated Material, the District reserves the right to use other forces for exploratory work to identify and determine the extent of such material and for removing Regulated Material from such areas.
- E. In the event that a dispute arises between the District and the Contractor on whether the conditions materially differ or on the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by this Contract but shall proceed with all Work to be performed under the Contract. The Contractor shall retain any and all rights provided either by this Contract or by law that pertain to the resolution of disputes and protests between the contracting parties.
- F. The Contractor shall be responsible for the safety and protection of the affected area of the Work for the duration of the District's investigation of potential differing conditions.

**3.10. Cost Reduction Incentive**

- A. The Contractor may submit to the Engineer, in writing, proposals for modifying the Drawings, Specifications, or other requirements of the Contract for the sole purpose of reducing the total cost of construction (known as value engineering change proposals) as provided for in State Specifications Section 4-1.07B wherein the words "State" and "Department" shall mean the District.

**3.11. Disputes**

- A. Claim: A written demand by the Contractor for an adjustment in the Contract Price(s) or in the Contract Time(s), or both, that is submitted in accordance with the requirements of the Contract Documents. Within the context of this Contract, a Claim is associated with a dispute as described in Articles 3.11. Disputes through 3.13. Dispute Review Board.

terms of the DRB provisions to the extent applicable to Subcontractor Claims; (iii) agree that, to the extent a Subcontractor Claim is involved, completion of all steps required under these DRB Special Provisions shall be a condition precedent to pursuit by the Subcontractor of other remedies permitted by law, including without limitation of a lawsuit against the Contractor; and (iv) agree that the existence of a dispute resolution process for disputes involving Subcontractor Claims shall not be deemed to create any Claim, right, or cause of action by any Subcontractor or Supplier against the District.

- F. The DRB reports shall not be binding on the District or on the Contractor and shall be admissible in subsequent dispute resolution proceedings.
- G. Immediately after award of the Contract, the District and the Contractor shall meet and discuss and establish the qualifications upon which nominees for the DRB are to be evaluated and jointly select prospective nominees.
- H. The District, the Contractor, and the DRB shall execute an agreement similar to the Three Party Agreement form included as an appendix to these Specifications. If there are any conflicts between the provisions of that agreement and these Specifications, the provisions of that agreement shall take precedence.
- I. The District and the Contractor shall each bear their respective in-house costs and costs of providing those DRB-related services for which responsibility has been allocated herein. The cost of the DRB panelists shall be split evenly between the Contractor and the District in the manner as described in paragraph "J" in this Article.
- J. The Contractor shall pay the full amount of any invoice or costs incurred from the DRB members in accordance with and as set forth in the DRB agreement and in these Specifications. The Contractor shall be reimbursed for 50 percent of these services utilizing the DRB Bid item, or Contract Change Order if no Bid item is specified.

#### **3.13.02. DRB Qualifications**

- A. Board members shall be experienced in the interpretation of Contract Documents and the resolution of construction disputes and in the type of construction to be performed.
- B. The following definitions apply for the purpose of setting forth experience and disclosure requirements.
  - 1. Party directly involved: The District or the Contractor of this Project.
  - 2. Contractor includes all joint-venture partners individually.
  - 3. Party indirectly involved: The construction manager, designers, architects, engineers, or other professional service firms or consultants,

joint-venture partners, Subcontractors of any tier, and Suppliers on this Project.

4. Financial ties: Any ownership interest, loans, receivables, or payables.

C. Eligibility

1. Direct Employment

- a. Current employees of any of the parties directly or indirectly involved are prohibited from serving as Board members.
- b. Prospective Board members who were past employees of one of the parties directly involved must obtain permission from the other party prior to appointment.
- c. Previous, direct employment by one of the parties indirectly involved must be disclosed.

2. Consulting Assignments

- a. Individuals who are employed in a consulting capacity by any of the parties directly involved are prohibited from serving as Board members.
- b. Prospective Board members who are currently employed as a consultant by one of the parties indirectly involved must obtain permission from the other party prior to appointment.
- c. Previous employment as a consultant by any party directly or indirectly involved must be disclosed.

3. Financial Ties

- a. Individuals with financial ties to any of the parties directly involved are prohibited from serving as Board members.
- b. Current financial ties to any of the parties indirectly involved must be disclosed.
- c. Previous financial ties with any party directly or indirectly involved must be disclosed.

4. Close Personal or Professional Relationships

- a. Individuals with close personal or professional relationships with a key member of any party directly involved are prohibited from serving as Board members.

- b. Such current relationships with a member of any party indirectly involved in the Contract must be disclosed.
  - c. All past personal or professional relationships with a key member of one of the parties directly or indirectly involved must be disclosed.
- 5. All past and current service as a Board member on projects where any of the parties directly or indirectly involved in this Contract were also involved must be disclosed.
- 6. No member shall have had substantial prior involvement in the Project in the judgment of the District and the Contractor.
- 7. Ongoing Responsibilities: While serving as a Board member on the DRB, no member shall participate in any discussion contemplating the creation of an agreement or making an agreement with any party directly or indirectly involved in the Contract regarding employment, or fee-based consulting services, or any other business arrangement after the Contract is completed.

**3.13.03. Establishment of the DRB**

- A. The District and the Contractor shall jointly participate in the evaluation and selection of prospective nominees for the DRB.
- B. The District and the Contractor shall provide to the DRB nominees a list of the construction manager, designers, architects, engineers, professional service firms, consultants, joint-venture partners, Subcontractors, and Suppliers involved or likely to be involved in the Project with a list of each party's key personnel.
- C. DRB nominees shall provide the following, pursuant to the above requirements and in addition to the nominee's full name and contact information, to both parties:
  - 1. Résumé showing construction experience qualifying the person as a DRB member.
  - 2. Résumé showing past DRB participation, if any. List each DRB assignment separately, indicating the name and location of the Project, dates of DRB service, name of owner, name of contractor, Contract value, nominating party, if applicable, names of the other Board members, and the number of disputes heard.
  - 3. Disclosure statement describing past, present, and anticipated relationships, including indirect relationships through the nominee's full-time employer, if any, to the Project, with all parties directly and indirectly involved in the Contract. Disclose close professional or personal relationships with key members of all of these parties.

4. Disclosure is a continuing obligation of all Board members throughout the life of the Contract.
- D. The District and the Contractor shall then have three (3) weeks to solicit and receive information from prospective candidates, and another two (2) weeks to review and to jointly agree on the final selection of the three (3) members to serve on the DRB. In the event that all three (3) members were not selected from the initial pool of nominees, the process shall be repeated.
- E. If the DRB Chair has not already been appointed as part of the selection process, as soon as is practicable, the Board members shall nominate the Chair and submit the nominee's résumé and request approval by the District and by the Contractor.

**3.13.04. DRB Meetings**

- A. The DRB shall visit the Project site and meet with representatives of the parties at periodic intervals and at other times requested by the parties.
- B. Each meeting shall consist of an informal discussion and a field observation of the Work in progress. The discussion and field observation shall be attended by personnel of the District and by the Contractor.

**3.13.05. Dispute Resolution**

- A. Prior Good-Faith Negotiation
  1. The District and the Contractor shall enter into good-faith negotiations to settle a dispute before referring the dispute to the DRB.
  2. These good-faith negotiations shall be founded on the principle of full and timely disclosure of each party's position to the other party, including the exchange of pertinent supporting records, analyses, expert reports, and similar documentation, and shall proceed without delay following the inception of the dispute. Such good-faith negotiations may involve the solicitation and rendering of a DRB advisory opinion as described herein.
- B. Dispute Referral
  1. A dispute may be referred to the DRB by either the District or by the Contractor. The dispute referral shall be made in writing to the DRB Chair with a copy concurrently provided to the other Board members and to the other party.
  2. If the Contract stipulates a precedent dispute resolution process prior to referral to the DRB and if one party fails to meet or adhere to the time requirements set forth under the Contract for this process, the other party may then refer the dispute to the DRB. In the event that the Contract does not specify a precedent process or specifies a precedent process



without time requirements, either party may refer the dispute to the DRB after passage of a reasonable period of time without progress toward a negotiated settlement; the DRB will determine if the dispute should be heard.

3. The dispute referral shall concisely define the nature and specifics of the dispute that are to be considered by the DRB and the scope of the recommendation requested.
4. The DRB Chair shall confer with the parties to establish a due date for delivering pre-hearing submittals, and a date, time, and location for convening the DRB hearing. Hearings shall be convened at the next periodic meeting, unless the parties agree to a shorter or longer period.

C. Pre-hearing Submittal

1. The District and the Contractor shall each prepare a pre-hearing submittal and transmit it to all three (3) members of the DRB and to the other party. The pre-hearing submittal, comprised of a position paper with such backup data as is referenced in the position paper, shall be tabbed, indexed, and the pages consecutively numbered.
2. Both position papers shall, at a minimum, contain the following:
  - a. A joint statement of the dispute and the scope of the desired report placed in a prominent location. The language of this joint statement shall summarize in a few sentences the nature of the dispute. If the parties are unable to agree on the wording of the joint statement of dispute, each party's position paper shall contain both statements and identify the party authoring each statement.
  - b. The basis and justification for the party's position with reference to Contract language and other supporting documents for each element of the dispute. To minimize duplication and repetitiveness, the parties may identify a common set of documents that will be referred to by both parties and submit it in a separate package.
  - c. When the scope of the hearing includes quantum, the referring party shall include a schedule impact analysis and full cost details, calculated in accordance with methods set forth in the Contract. This requirement does not apply if the report is to be made for entitlement alone or for entitlement with guidelines for quantum.
3. The number of copies, distribution requirements, and time for submittal will be established by the DRB and communicated to the parties by the Chair.

**D. DRB Hearings**

1. The District will arrange for or will provide hearing facilities at or near the site.
2. Attendance
  - a. The District and Contractor shall both limit attendance at the hearing to personnel directly involved in the dispute and participants in the good-faith negotiations that were conducted prior to submittal to the DRB except as noted below.
  - b. Prior to the date established for the hearing, each party shall provide a list of proposed attendees to the DRB and to the other party. In the event of any disagreement, the DRB shall make the final determination as to who attends the hearing.
  - c. Attorneys shall not participate in the hearing. Attorneys representing the parties are permitted to attend dispute hearings provided that prior permission is obtained from the other party.
  - d. At DRB hearings regarding Claims by a Subcontractor, including pass-through Claims by a lower tier Subcontractor or Supplier against the Contractor that are actionable by the Contractor against the District, the Contractor shall require and ensure that each Subcontractor involved in the dispute has presented an authorized representative with actual knowledge of the facts underlying the Subcontractor Claims.
3. The conduct of the hearing shall be established by the DRB according to its operating procedures and be generally consistent with the following guidelines:
  - a. The party who referred the dispute to the DRB shall present its position first, followed by the other party.
  - b. Both parties shall be allowed successive rebuttals, assuring a full and adequate opportunity to present their position, and to rebut the opposing party's position, until, in the DRB's opinion, all aspects of the dispute have been fully and fairly covered.
  - c. The DRB shall be fully prepared to, and may at any time, ask questions, request clarifications, or ask for additional data and/or for job records.
  - d. Either party may request that the DRB direct a question to or request a clarification from the other party. The DRB shall determine at what point in the proceedings such requests may be

made and if they will be granted. In general, the DRB will not allow one party to be questioned directly by the other party.

- e. In difficult or complex cases, additional hearings may be necessary to facilitate full consideration and understanding of the dispute.
- f. The DRB, in its discretion, may allow introduction of arguments, exhibits, handouts, or documentary evidence that were not included in that party's pre-hearing position paper and that had not been previously submitted to the other party. In such cases, the other party will be granted time to review and prepare a rebuttal to the new material.

**E. Failure to Prepare a Pre-hearing Submittal or Attend a DRB Hearing**

- 1. In the event that either party fails to deliver a pre-hearing submittal by the date established by the DRB, the DRB shall, at its discretion, determine whether the hearing shall proceed as originally scheduled or whether additional time shall be provided and a new date established. On the final date and time established for the hearing, the DRB shall proceed with the hearing utilizing the information that has been submitted.
- 2. In the event that some or all of the representatives of either party fail to appear at the appointed time of a DRB hearing, the DRB shall proceed with the hearing. The hearing shall take place as if all party representatives were in attendance. The DRB shall consider all evidence brought before it and hear testimony from those party representatives who are present.

**F. Use of Outside Experts**

- 1. By the District or by the Contractor
  - a. A party intending to offer an outside expert's analysis at the hearing shall disclose such intention in writing to the other party and to the DRB no less than 30 Days prior to the due date for delivering the pre-hearing submittal. The expert's name and a general statement of the area of the dispute that will be covered by his/her testimony shall be included in the disclosure.
  - b. Upon receipt of the above disclosure, the other party shall have the opportunity to secure the services of an outside expert to address or respond to those issues that may be raised by the other party's outside expert. The disclosure requirements shall be the same as that specified above, except the time requirement is ten (10) Days.

- c. The cost for securing outside expert services shall be borne by the party securing such services.
- 2. By the DRB
  - a. Prior to arranging for outside experts, the DRB shall obtain prior approval from the District and from the Contractor by providing:
    - 1. A statement explaining why the expert assistance is needed.
    - 2. An estimate of the cost of the expert assistance.
    - 3. A disclosure statement in accordance with the requirements of Article 3.13.03. Establishment of the DRB herein using the criteria established in Article 3.13.02. DRB Qualifications.
    - 4. A confidentiality statement, consistent with the DRB's agreement, executed by the proposed expert.
    - 5. The Contractor and the District shall equally bear the cost of the services of the outside expert employed by the DRB.
- G. DRB Report
  - 1. The DRB's recommendations for resolution of a dispute will be formalized in a written report with a format as determined by the DRB and signed by all Board members. The report should consist of a concise description of the dispute, short statements of each party's position, findings as to the facts of the dispute, discussion and rationale for the recommendation(s), and the recommendation(s). The report shall be submitted concurrently to the parties as soon as possible after completion of the hearing as agreed by all parties.
  - 2. If the DRB cannot arrive at a unanimous report, the Board shall prepare minority findings and recommendation(s), which, together with the majority findings and recommendation(s), shall comprise the DRB report. The report shall identify the issues of disagreement along with the reasons for disagreement.
  - 3. Clarification
    - a. Either party may request clarification of a report within ten (10) Days following receipt of the report. Within a reasonable period of time, the DRB shall provide written clarification to both parties.

- b. Requests for clarification shall be submitted in writing simultaneously to the DRB and to the other party.
- c. Only one request for clarification per dispute from each party shall be allowed.

4. Reconsideration

- a. Either party may request reconsideration of a report within ten (10) Days following receipt of the report when new information is obtained or developed that was not known at the time of the hearing, or when, in the party's opinion, the DRB misunderstood or failed to consider pertinent facts of the dispute. Within a reasonable period of time, the DRB shall provide written reconsideration to both parties.
- b. Requests for reconsideration shall be submitted in writing simultaneously to the DRB and to the other party.
- c. The Board will not entertain requests for reconsideration that amount to a renewal of a prior argument or an additional argument based on facts available at the time of the hearing.
- d. Only one request for reconsideration per dispute from each party shall be allowed.

5. Acceptance

- a. The District and the Contractor shall submit their written acceptance or rejection of the report concurrently to the other party and to the DRB within 14 Days of receipt of the report or following receipt of responses to requests for clarification or reconsideration.
- b. Failure by either party to accept or reject within the specified period shall be construed as acceptance of the report by that party.
- c. Acceptance by the District of a report on entitlement only, or on entitlement with guidelines for quantum, does not obligate the District to any particular quantum amount.

H. Advisory Opinions

- 1. An advisory opinion serves as a method for potentially avoiding a DRB hearing. It is not intended to replace the dispute resolution process specified herein but may be implemented as part of the good-faith negotiations conducted between the parties.

2. When mutually agreed to by the District and by the Contractor, the DRB may, at its discretion, provide an advisory opinion on any issue.

### **3.14 Escrow Bid Documents**

- A. When required by the Special Provisions, Escrow Bid Documents shall be prepared and submitted as specified herein.

#### **3.14.01. Introduction**

- A. The Escrow Bid Documents shall include complete documentation of all backup information used in the preparation of the Contractor's Bid prices for this Project as described below. The Escrow Bid Documents of the successful Bidder will be held in escrow for the duration of the Contract or until all Claims are resolved, whichever is later.
- B. The Escrow Bid Documents are, and shall always remain, the property of the Contractor, subject to joint review by the District and by the Contractor as provided herein.
- C. The District stipulates and expressly acknowledges that the Escrow Bid Documents, as defined herein, constitute trade secrets.
  1. This acknowledgement is based on the District's express understanding that the information contained in the Escrow Bid Documents is not known outside the Bidder's business, is known only to a limited extent and by a limited number of employees of the Bidder, is safeguarded while in the Bidder's possession, and is extremely valuable to the Bidder's competitors by virtue of its reflecting Bidder's construction strategies, assumptions, and intended means, methods, and techniques of construction.
  2. The District acknowledges that the Bidder expended substantial sums of money in developing the information included in the Escrow Bid Documents and further acknowledges that it would be difficult for a competitor to replicate the information contained therein.
  3. The District further acknowledges that the Escrow Bid Documents and the information contained therein are being provided to the District only because it is an express prerequisite to award of the Contract.
  4. The District further acknowledges that the Escrow Bid Documents include a compilation of information used in the Bidder's business intended to give the Bidder an opportunity to obtain an advantage over competitors who do not know or do not use the contents of such information.
  5. The District further agrees, to the fullest extent permitted by law, to safeguard the Escrow Bid Documents against disclosure and not provide as public records.

- D. The successful Bidder agrees, as a condition of award of the Contract, that the Escrow Bid Documents constitute all of the information used in the preparation of its Bid for this Work and that no other Bid preparation information shall be considered in resolving disputes or Claims. The successful Bidder also agrees that nothing in the Escrow Bid Documents shall change or modify the terms or conditions of the Contract Documents.

**3.14.02. Purpose**

- A. The Escrow Bid Documents will be used solely to assist in the settlement of disputes and Claims. They will not be used for pre-award evaluation of the Contractor's anticipated methods of construction nor to assess the Contractor's qualifications for performing the Work.

**3.14.03. Format and Contents**

- A. The Bidders may submit the Escrow Bid Documents in their usual cost estimating format; a standard format is not required. However, sufficient detail shall be included to ensure that the Escrow Bid Documents enable complete understanding and proper interpretation of their content.
- B. The Escrow Bid Documents shall clearly itemize and separate the estimated cost of performing each major activity for each Bid item contained in the Bid. Bid items should be separated into sub-items to present a detailed cost estimate. Crews, Equipment, estimated quantities, and the rate of production shall be detailed. Increments of cost shall include, but shall not be limited to, such items as direct labor, permanent Material, supplies, consumables, subcontracts, Equipment charges, and allocation of overhead and profit. Plant, Equipment, and indirect costs should be detailed. All costs included in the Bid prices must be specifically identified and the methods of application described.
- C. The Escrow Bid Documents shall include all quantity takeoffs; calculations of rates of production and progress; copies of quotes from Subcontractors and Suppliers; and memoranda, narratives, and all other information used by the Bidder to arrive at the prices contained in its Bid.

**3.14.04. Submittal**

- A. The Escrow Bid Documents shall be submitted by the three (3) apparent low Bidders in a sealed container separate from their proposal no later than 5 p.m. on the second business day following the Bid opening Day. Each container shall be clearly marked on the outside with the Bidder's name, date of submittal, Project name, and the words "Escrow Bid Documents." Timely submission of these forms is considered material by the District.
- B. The Escrow Bid Documents shall be accompanied by a separate certification, "Bid Form 10 – Escrow Bid Documents Certification of Completeness," signed by an individual authorized by the Bidder to execute the bidding proposal and stating that the material in the Escrow Bid Documents constitutes all of the

documentary information used in preparation of this Bid, and that the Bidder's authorized individual has personally examined the contents of the Escrow Bid Documents container and has found that the documents in the container are complete.

- C. The Escrow Bid Documents of the apparent successful Bidder will be opened and examined by an appointed member of the District in the presence of the Bidder before the Contract is awarded. The apparent successful Bidder and applicable Subcontractors as stated in paragraph "G" in this Article shall attend this examination.
- D. This examination is to ensure that the Escrow Bid Documents are legible and complete. It will not include a review of, or constitute approval of, proposed construction methods, estimating assumptions, or interpretations of the Contract Documents. The examination will not alter any condition or term of the Contract. Should the examination indicate that any data is incomplete or missing, the Bidder shall supply the missing information within 24 hours or at such other time as is mutually agreeable.
- E. The timely submittal of complete Escrow Bid Documents is an essential element of the bidding process and a prerequisite to Contract award. Failure to provide the necessary Escrow Bid Documents will be sufficient cause for the District to reject the Bid as nonresponsive.
- F. If the Contract is not awarded to the apparent successful Bidder, the Escrow Bid Documents of the Bidder next to be considered for award shall be processed as described above. The Escrow Bid Documents of unsuccessful Bidders will be held in escrow until such time that they are returned unopened upon execution of the Contract by the successful Bidder.
- G. If any Bidder's proposal is based upon subcontracting any part of the work, each Subcontractor whose total subcontract price exceeds the percentage of the total Bid price specified in the Special Provisions shall provide separate Escrow Bid Documents to be included with those of the Bidder. Such documents shall be opened and reviewed in the presence of the Subcontractor only in the same manner and at the same time as the review described above for the apparent successful Bidder.
- H. It is the District's policy, in accordance with State law, that new Subcontractors are not accepted after award. However, if the Contractor wishes to lawfully change a Subcontractor or lawfully issue an additional subcontract for any portion of the Work after award and the District grants a specific exception to this policy, the District retains the right to require that the new Subcontractor submit Escrow Bid Documents before the new subcontract is approved.

**3.14.05. Storage**

- A. Upon completion of the examination, receipt of the apparent successful Bidder's Escrow Bid Documents will be acknowledged in writing by the District. The



documents will be placed in escrow for the life of the Contract at an escrow firm within the greater Santa Clara County area chosen by the District. The District will pay for storage and maintenance of the Escrow Bid Documents.

**3.14.06. Examination**

- A. The Escrow Bid Documents may be examined at any time deemed necessary by either the District or by the Contractor to assist in settling disputes and Claims.
- B. An examination of the Escrow Bid Documents is subject to the following conditions:
  - 1. As trade secrets, Escrow Bid Documents are proprietary and confidential.
  - 2. The District and the Contractor (and any Subcontractor to the extent Escrow Bid Documents are required by a Subcontractor) shall each designate in writing to the other party seven (7) Days prior to any examination representatives who are authorized to examine the Escrow Bid Documents. With the consent of both the District and the Contractor, members of the DRB may participate in the examination of the Escrow Bid Documents. No other person shall have access to the Escrow Bid Documents.
  - 3. Access to the Escrow Bid Documents may take place only in the presence of a duly designated representative of both the District and the Contractor. If the Contractor fails to designate a representative or fails to appear for joint examination on seven (7) Days' notice, then the District representative may examine the Escrow Bid Documents upon an additional three (3) Days' notice.

**3.14.07. Final Deposition**

- A. The Escrow Bid Documents will be returned to the Contractor after the Work has been completed and accepted and after all Claims and disputes involving this Work have been settled. The Contractor will thereupon be required to waive, in writing, any right to lodge further Claims involving this Work.

**3.15. Partnering****3.15.01. Partnering Relationship**

- A. The District encourages a partnering relationship with the Contractor to effectively complete the Contract to the benefit of both parties. The purpose of this relationship will be to maintain cooperative communication and to mutually resolve conflicts at the lowest possible management level.

**3.15.02. Professionally Facilitated Project Partnering**

- A. To further the partnering relationship, Professionally Facilitated Project Partnering can be implemented by one of two methods:
  - 1. The District requires Professionally Facilitated Project Partnering. The Contractor shall comply with the Special Provisions regarding this requirement.
  - 2. The Contractor submits a written request for Professionally Facilitated Project Partnering. However, this method can only be implemented if the Engineer approves the request in writing.
- B. Implementation of Professionally Facilitated Project Partnering
  - 1. Scheduling the Professionally Facilitated Project Partnering workshops, selecting the Professional Partnering Facilitator and workshop site, and other administrative details shall be as agreed to by both parties.
  - 2. Partnering workshops will be held on a quarterly basis during construction, or as needed, and as determined by the Engineer and by the Contractor. Both parties will determine workshop attendees, agenda, and duration. Persons required to be in attendance will be the Engineer and/or the Engineer's authorized agents and key Project personnel; the Contractor's authorized representative, on-site Project manager, and key Project supervision personnel of both the prime and principal Subcontractors and Suppliers; and other personnel as deemed necessary by the District and by the Contractor.
  - 3. The Contractor shall secure the Professional Partnering Facilitator and the off-site meeting room. The District will pay in full for the services of a Professional Partnering Facilitator and for the off-site meeting room based on invoices priced without markup. Payment for these services shall be made utilizing the Professionally Facilitated Project Partnering Bid item or Contract Change Order if no Bid item is specified. All other costs associated with the partnering workshops will be borne separately by the party incurring the costs (e.g., wages and travel expenses); no additional payment shall be made.
- C. The establishment of Professionally Facilitated Project Partnering will not change or modify the terms and conditions of the Contract and will not relieve either party of its legal requirements of the Contract.

**3.16. Claims and Disputes per Public Contract Code Section 9204**

- A. Public Contract Code Section 9204 (PCC 9204) applies to all contracts entered into on or after January 1, 2017. PCC 9204 shall remain in effect only until January 1, 2020, and as of that date is repealed, unless a later enacted statute,

that is enacted before January 1, 2020, deletes or extends that date. The provisions of PCC 9204 are set forth below.

- B. The Legislature has found and declared that it is in the best interests of the state and its citizens to ensure that all construction business performed on a public works project in the state that is complete and not in dispute is paid in full and in a timely manner. PCC 9204 shall apply to any claim by a contractor in connection with a public works project.
- C. Prior to submitting a claim per PCC 9204, the Contractor shall comply with Article 3.11.01. Protest, Article 3.11.02 Notice of Potential Claims, 3.12. Claims, A. through F.
- D. For purposes of PCC 9204, the following definitions apply:
  - 1. "Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:
    - a. A time extension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project.
    - b. Payment by the public entity of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.
    - c. Payment of an amount that is disputed by the public entity.
  - 2. "Contractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who has entered into a direct contract with a public entity for a public works project.
  - 3. "Public entity" means, without limitation, except as provided in subparagraph (b), a state agency, department, office, division, bureau, board, or commission, the California State University, the University of California, a city, including a charter city, county, including a charter county, city and county, including a charter city and county, district, special district, public authority, political subdivision, public corporation, or nonprofit transit corporation wholly owned by a public agency and formed to carry out the purposes of the public agency.
  - 4. "Public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.

5. "Subcontractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who either is in direct contract with a contractor or is a lower tier subcontractor.
- E.
  1. a. Upon receipt of a claim pursuant to PCC 9204, the District shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the Contractor a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, the District and Contractor may, by mutual agreement, extend the time period provided in this Article.
  - 1.b. The Contractor shall furnish reasonable documentation to support the claim.
  - 1.c. If the District needs approval from the Board to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the claim, and the Board does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the District shall have up to three days following the next Board meeting after the 45-day period, or extension, expires to provide the Contractor a written statement identifying the disputed portion and the undisputed portion.
  - 1.d. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the District issues its written statement. If the District fails to issue a written statement, paragraph 3. below shall apply.
  - 2.a. If the Contractor disputes the District's written response, or if the District fails to respond to a claim issued pursuant to this Article within the time prescribed, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the District shall schedule a meet and confer conference within 30 days for settlement of the dispute.
  - 2.b. Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the District shall provide the Contractor a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the District issues its written statement. Any disputed portion of the claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the District and the Contractor sharing the associated costs equally. The District and Contractor shall mutually agree to a mediator within ten (10) business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall

select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this Article.

- 2.c. For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this Article.
- 2.d. Unless otherwise agreed to by the District and the Contractor in writing, the mediation conducted pursuant to this Article shall excuse any further obligation under Public Contract Code Section 20104.4 (see Article 3.12.01. Claims Less Than Fifty Thousand Dollars through Article 3.12.04. Civil Actions) to mediate after litigation has been commenced.
- 2.e. This Article does not preclude the District from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this Article does not resolve the parties' dispute.
- 3. Failure by the District to respond to a claim from a Contractor within the time periods described in this Article shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the District's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this Article, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the Contractor.
- 4. Amounts not paid in a timely manner as required by this Article shall bear interest at 7 percent per annum.
- 5. If a Subcontractor or a lower tier Subcontractor lacks legal standing to assert a claim against the District because privity of contract does not exist, the Contractor may present to the District a claim on behalf of a Subcontractor or lower tier Subcontractor. A Subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier Subcontractor, that the Contractor present a claim for work which was performed by the Subcontractor or by a lower tier Subcontractor on behalf of the Subcontractor. The Subcontractor requesting that the claim be presented to the District shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the Contractor shall notify the Subcontractor in writing as to whether the Contractor presented the claim to the District and, if the original

Contractor did not present the claim, provide the Subcontractor with a statement of the reasons for not having done so.

- F. A waiver of the rights granted by PCC 9204 is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) a public entity may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of PCC 9204, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in PCC 9204.
- G. Nothing in PCC 9204 shall impose liability upon a public entity that makes loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

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## **SECTION 4. LEGAL REGULATIONS AND RESPONSIBILITY**

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### **4.01. Laws to be Observed**

- A. The Contractor shall remain informed of and in compliance with the latest version of applicable existing and future Federal, State, County, and Municipal laws, ordinances, rules, and regulations, including, but not limited to, those cited herein.

### **4.02. Equal Opportunity Requirements**

- A. The Santa Clara Valley Water District is an equal opportunity employer and requires its contractors to have and adhere to a policy of equal opportunity and nondiscrimination. In the performance of the Agreement, the Contractor will comply with all applicable Federal, State, Local Laws and Regulations, and will not discriminate against any Subcontractor, employee, or applicant for employment in the recruitment, hiring, employment, utilization, promotion, classification or reclassification, transfer, recruitment advertising, evaluation, treatment, demotion, layoff, termination, rates of pay or other forms of compensation, and selection for professional development training (including apprenticeship); or against any other person on the basis of sex (which includes pregnancy, childbirth, breastfeeding, and medical conditions related to pregnancy, childbirth, or breastfeeding); race, religion, color, national origin (including language-use restrictions); ancestry, religious creed (including religious dress and grooming practices); political affiliation, disability (mental and physical, including HIV or AIDS); medical condition (cancer and genetic characteristics) and genetic information; marital status, parental status, gender, age (40 and over); pregnancy, military, and veteran status; sexual orientation, gender identity, and gender expression; the exercise of family and medical care leave; the exercise of pregnancy disability leave; or the request, exercise, or need for reasonable accommodation.
- B. The Contractor's policy must conform with applicable State and Federal guidelines, including the Federal Equal Opportunity Clause, "Section 60-1.4 of Title 41, Part 60 of the Code of Federal Regulations;" Title VII of the Civil Rights Act of 1964 as amended; the American's with Disabilities Act of 1990; the Rehabilitation Act of 1973 (Sections 503 and 504); the Age Discrimination Act of 1975 (42 U.S.C. Section 6101 et. seq.); California Fair Employment and Housing Act (Government Code Section 12900 et. seq.); and California Labor Code Sections 1101 and 1102.

### **4.03. Employment of Labor**

- A. In the employment of labor in the performance of the Contract, the District desires that the Contractor and all Subcontractors give first consideration to residents of the District.



**4.04. Prevailing Wages**

- A. The Work to be performed pursuant to this Contract is “public works” subject to the California Prevailing Wage Law, California Labor Code Section 1720, et seq. and the applicable implementing regulations (the Prevailing Wage Law) with which the Contractor must comply. The General Prevailing Wage Rates issued by the California Department of Industrial Relations may be adjusted by the State during the term of this Contract. Notwithstanding any other provisions of this Contract, the Contractor will not be entitled to any adjustment in compensation in the event there are adjustments to the General Prevailing Wage Rates.
1. In accordance with the Prevailing Wage Law, the Director of the Department of Industrial Relations has ascertained the general prevailing rate of wages and employer payments for health and welfare, pension, vacation, and similar purposes available to the particular craft, classification, or type of workers employed on the Work. These rates are set forth in the latest determination obtained from the Director, which is on file in the office of the Clerk of the Board of Directors and incorporated herein by reference the same as though set out in full. The rates are also available on the State of California Department of Industrial Relations website at <http://www.dir.ca.gov>.
  2. The Contractor shall pay a penalty to the District of \$200 for each Day, or portion thereof, for each worker paid less than the stipulated prevailing rate for any public Work done under the Contract by the Contractor or by any Subcontractor in violation of the provisions of the Prevailing Wage Law.
- B. Each Contractor and Subcontractor shall keep an accurate payroll record, showing the name, address, Social Security number, work classification, straight time, and overtime hours worked each Day and week, and the actual per-diem wages paid to each journeyman, apprentice, worker, or other employee by him/her in connection with the public Work. The payroll records shall be certified and shall be available for inspection at all reasonable hours at the principal office of the Contractor in accordance with the Prevailing Wage Law.
1. The Contractor and each Subcontractor, pursuant to California Labor Code Section 1776, must submit certified weekly payroll(s) within ten (10) Days after the Owner’s request for submission of certified weekly payroll records. The certified payroll(s) must include the date of actual payment of wages for each worker employed on the Project and a breakdown of each payment, including all fringe benefits included in such wage for each worker.
  2. In the event that the Contractor fails to comply with the ten (10)-Day submission deadline of California Labor Code Section 1776, the Contractor shall pay a penalty to the District of \$100 for each calendar Day or portion thereof, for each worker, until the Contractor achieves compliance with Section 1776.

3. The Contractor shall inform the District of the location of the payroll records—including the street address, city, and county—and shall, within five (5) working Days, provide a notice of a change in location and address. The Contractor is responsible for compliance with payroll record requirements imposed by Section 1776 of the Labor Code.
- C. The Contractor must submit certified weekly payroll(s) in support of the monthly request for payment as required herein. Certified weekly payroll(s) must be submitted within ten (10) calendar Days from the progress payment end date. Payroll(s) shall contain the full name, address, and Social Security number of each employee; his/her correct classification and rate of pay; daily and weekly number of hours worked; itemized deductions made; and actual wages paid. Payroll shall also indicate apprentices and ratio of apprentices to journeymen. The employee's address and Social Security number need only appear on the first payroll on which his/her name appears. The payroll(s) shall be accompanied by a Statement of Compliance signed by the employer or agent indicating that the payroll(s) is correct and complete and that the wage rates contained therein are not less than those required by the Contract. The Statement of Compliance shall be on forms furnished by the District or on any form with identical wording. The Contractor shall be responsible for the submission of copies of the payroll(s) of all Subcontractors, including sub-Subcontractors.
1. This project is subject to compliance monitoring and enforcement by the State of California Department of Industrial Relations. The Contractor and Subcontractors must furnish the records specified in Section 1776 directly to the Labor Commissioner in the following manner: monthly, in a format prescribed by the Labor Commissioner.
  2. The District will take all actions reasonably necessary to enforce the prevailing wage requirements of this Contract, including retaining progress payment funds not supported by certified payroll(s).
  3. Retentions for failure to submit satisfactory payroll(s) are in addition to all other retentions provided for in the Contract.
- D. The Contractor and each Subcontractor shall preserve their respective payroll records for a period of four (4) years from the date of filing a Notice of Completion and Acceptance under the Contract.
1. The work of installing, assembling, repairing, or reconditioning—or other work of any nature on machinery, Equipment, or tools used in or upon the Work—is considered a part of the Work to be performed under the Contract; any laborers, workers, or mechanics working on such machinery, Equipment, or tools are subject to all of the requirements relating to labor set forth in the Contract.
  2. The construction, erection, and operation of Material production, proportioning, or mixing plants from which Material is used wholly on the Contract or on contracts under the supervision of the District shall be

considered a part of the Work to be performed under the Contract; any laborers, workers, or mechanics working on such plants shall be subject to all of the requirements relating to labor set forth in the Contract.

**4.05. Hours of Labor**

- A. Eight (8) hours of labor constitutes a legal Day of work. The Contractor shall pay a penalty to the District of \$25 for each worker employed in the execution of the Contract by the Contractor or by any Subcontractor for each Day during which such worker is required or permitted to labor more than eight (8) hours in violation of Labor Code Sections 1810 to 1815, inclusive.

**4.06. Apprentices**

- A. The Contractor shall comply with Sections 1777.5, 1777.6, and 1777.7 of the Labor Code concerning the employment of apprentices by the Contractor or by any Subcontractor.
- B. Section 1777.5 requires the Contractor or Subcontractor employing persons as defined in any apprenticeable occupation to apply for a certificate of approval to the joint apprenticeship committee that is nearest the site of the public works project and that administers the apprenticeship program in that trade. The certificate will also fix the ratio of apprentices to journeymen that will be used in the performance of the Contract. The ratio of work performed by apprentices to journeymen in such cases shall not be less than one (1) hour to five (5) hours, except when the committee finds that any one of the following conditions are met:
  - 1. In the event unemployment for the previous three (3)-month period in the Project site area exceeds an average of 15 percent; or
  - 2. In the event the number of apprentices in the area exceeds a ratio of one (1) to five (5); or
  - 3. If there is a showing that the apprenticeable craft or trade is replacing at least one thirtieth of its journeymen annually through apprenticeship training either (i) on a statewide basis, or (ii) on a local basis; or
  - 4. If assignment of an apprentice to any Work performed under a public works contract would create a condition that would jeopardize his/her life; or the life, safety, or property of fellow employees; or the public at large; or if the specific task to which the apprentice is to be assigned is of such a nature that training cannot be provided by a journeyman.
- C. The Contractor is required to make contributions to funds established for the administration of apprenticeship programs if the Contractor employs registered apprentices or journeymen in any apprenticeable trade on such contracts and if other contractors on the public works site are making such contributions.

- D. The Contractor and any Subcontractor shall comply with the requirements of Sections 1777.5 and 1777.6 in the employment of apprentices.
- E. Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex officio the Administrator of Apprenticeship, San Francisco, CA, or from the Division of Apprenticeship Standards and its branch offices.

**4.07. Permits and Licenses**

- A. The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the prosecution of the Work, except as provided in the Special Provisions.

**4.08. Patents and Copyrights**

- A. The Contractor shall assume all costs, including any costs of defense arising from the use of any copyrighted composition, secret process, patented or unpatented invention, article, Equipment, device, or appliance manufactured, furnished, or used in the performance of the Contract, including their use by the District, unless otherwise specifically stipulated in the Specifications.

**4.09. Interference With Fire Hydrants, Highways, and Fences**

- A. The Contractor shall conduct operations so as not to close or obstruct any portion of any highway, road, or street, or prevent in any way free access to fire hydrants until permits have been obtained thereof from the proper authorities. If any highway required to be kept open shall be rendered unsafe by the Contractor's operations, the Contractor shall make such repairs or provide such temporary guards as shall be acceptable to the authorities having jurisdiction and to the Engineer. Any highway or street maintenance or repair work required by local authorities in connection with necessary operations under the Contract shall be performed by the Contractor at the Contractor's own cost and expense. Fences subject to interference shall be maintained as effective barriers consistent with the original intent; upon approval of the Engineer, they may be moved or rearranged to facilitate prosecution of the Work until the Work is finished, after which they shall be restored to their original location in an equal or better condition than existed prior to rearrangement.

**4.10. Preservation of Property**

- A. The Contractor shall exercise due care to avoid damage to existing improvements, utility facilities, and adjacent property, real and personal. The fact that any existing underground improvement or facility is not shown on the Drawings shall not relieve the Contractor of the responsibility to ascertain the existence of any underground improvement or facility that may be subject to damage by reason of the Contractor's operations.

- B. Any damage to improvements or property—whether above or below ground, private or public, within or adjacent to the Project limits—arising from or in consequence of the performance of the Contract shall be promptly repaired by the Contractor.
- C. If the Engineer requires such repair to be made prior to the execution or continued performance of any part of the Work included in this Contract, the Engineer will so notify the Contractor who shall delay or discontinue the performance of that part of the Work until the necessary repair has been made. Such delay shall be considered Inexcusable Delay; no extension of time for completion of the Contract will be allowed. The Contractor will be subject to Contract damages for any impact to the Contract Milestones resulting from its damage to property or from failure to make timely repairs.
- D. When ordered by the Engineer to make any such repair, the Contractor shall start work thereon within four (4) hours and shall prosecute the same with diligence to completion. Upon failure of the Contractor to so comply with such order, or upon the Contractor's failure to make immediate emergency repairs reasonably determined by the Engineer to be necessary in the best interests of the public, the Engineer shall have authority to cause the repair to be made and to deduct the costs thereof from any money due, or which may become due, the Contractor.
- E. In an emergency affecting the safety of life or property, including adjoining property, the Contractor shall act to prevent, to the extent possible, such threatened loss or injury whether instructed or not to do so by the Engineer.

**4.11. Contractor's Responsibility for the Work**

- A. Until the Acceptance of the Work, the Contractor shall have the charge and care of the Work and of the Material to be used therein and shall bear the risk of injury, loss, or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from non-execution of the Work. The Material to be used in the Work include both those furnished by the District and those furnished by the Contractor, including Material for which the Contractor has received partial payment.

**4.12. Indemnification**

- A. The Contractor shall defend, indemnify, and hold harmless the District and its Directors, officers, employees, and agents from liability, loss, suits, actions, or claims brought for or on account of violation of Laws, Ordinances, Rules, or Regulations, or injury, damage, or loss (including death) caused by acts or omissions of the Contractor, its employees, or its agents.
- B. The Contractor shall defend, indemnify, and hold harmless the agencies/parties named in Article 14.16. Insurance, of the Special Provisions—including their officers, employees, and agents—from liability, loss, suits, actions, or claims brought for or on account of any violation of Laws, Ordinances, Rules, or

Regulations, or injury, damage, or loss (including death) caused by acts or omissions of the Contractor, its employees, or its agents.

**4.13. Contractor's Insurance****4.13.01. General**

- A. The insurance procured by the Contractor for the benefit of Santa Clara Valley Water District shall not be deemed to release or limit any liability of the Contractor. Damages recoverable by Santa Clara Valley Water District for any liability of the Contractor shall, in any event, not be limited by the amount of the required insurance coverage. Failure by the Contractor to maintain all required insurance at all times during the performance of this Contract and until acceptance by the District, shall, at the discretion of the District, result in temporary suspension of Work, or termination of control, or termination of the Contract as indicated herein, and shall not be a basis for a time extension. The Contractor's insurance shall be primary with respect to any other insurance that may be carried by Santa Clara Valley Water District.
- B. The District has the right to require the Contractor to provide complete, certified copies of all required pertinent insurance policies, including endorsements affecting the coverage required by the Agreement.
- C. The specific insurance requirements and coverages shall be in accordance with the Special Provisions.

**4.13.02. Insurance on Work and Material**

- A. The Contractor shall secure and maintain such direct damage insurance against such perils as the Contractor may deem necessary to protect the Work called for in this Contract, including Work completed, Material in place or to be used in the performance of this Contract, and such other miscellaneous items as may be necessary to the performance of this Contract.

**4.14. Payment of Taxes**

- A. Except as otherwise specifically provided in the Special Provisions, the Contract Price(s) shall include full compensation for all current and future taxes that the Contractor is required to pay, whether imposed by Federal, State, or Local government; no tax exemption certificate or any other document designed to exempt the Contractor from payment of tax will be furnished to the Contractor by the District.

**4.15. Cooperation With Others**

- A. The District reserves the right to do other work on or near the Project. The Contractor shall cooperate with others and coordinate its Work with planned or ongoing work of the District or of other District contractors within or adjacent to the limits of the Contract Work. The Contractor shall conduct the Work so as to

facilitate work by the District or by others and prevent delay, additional expense, or hindrance thereto, and allow for the satisfactory prosecution of the Work.

- B. The Contractor shall request from, and exchange with others, Drawings, data, and information as necessary to ensure proper completion of the Project and of the work of others. The Contractor shall furnish to the Engineer copies of correspondence and Drawings exchanged with other contractors.
- C. The Contractor shall complete the following activities as requested by the Engineer to assist in the coordination of Contract Work with work by others: attend planning meetings; review and comment on Project documents relative to coordination aspects; schedule Work to promote efficient installation of all improvements; move Material, Equipment, or vehicles to allow work by others to proceed; and other reasonable activities.
- D. No additional payment shall be made or Claims considered for Delay due to the Contractor's failure to coordinate the Work or because of conflicts with other construction, including that of the District.
- E. The Contractor agrees to reimburse the District for any payments made to other Contractors that were incurred as a result of the Contractor's Inexcusable Delays.

#### **4.16. Property Rights in Material**

- A. Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the Material used after they have been attached or affixed to the Work or after payment has been made for 90 percent of the value of Material delivered to the site of the Work, whether or not they have been so attached or affixed. All such Materials shall become the property of the District upon being so attached or affixed or upon payment of 90 percent of the value of Material delivered by the Contractor to the worksite and not used as provided herein.

#### **4.17. Rights in Land and Improvements**

- A. Nothing in these Standards shall be construed as allowing the Contractor to make any arrangements with any person to permit occupancy or use of any land, structure, or building within the limits of the Contract for any purpose whatsoever, either with or without compensation, in conflict with any agreement between the District and any owner, former owner, or tenant of such land, structure, or building.

#### **4.18. Title to Material Found on the Work**

- A. The title to all water and to the right to use all water; and all soil, stone, gravel, sand, minerals; and all other Material developed or obtained in the excavation or other operations by the Contractor, or by any Subcontractor, or by any of their employees, and the right to use or dispose of the same are hereby expressly reserved by the District; neither the Contractor, nor any Subcontractor, nor any of

their employees shall have any right, title, or interest in, or to any part thereof; neither shall they, nor any of them, assert or make any claim thereto. The Contractor may be permitted to use in the Work, without charge, any such Material that meet the requirements of these Specifications.

**4.19. Trespass**

- A. The Contractor shall be responsible for all damage or injury that may be caused on or to any property by trespass by the Contractor, any Subcontractor, or any of their employees in the course of their employment, whether the said trespass was committed with or without the consent or knowledge of the Contractor.

**4.20. Subcontracting**

- A. The Contractor shall comply with the Subletting and Subcontracting Fair Practices Act commencing with Public Contract Code Section 4100. Violations shall subject the Contractor to penalties described therein.
- B. For the purposes of consenting to substitution of a designated Subcontractor in accordance with Public Contract Code Section 4107, 4109, and 4110, the Administrative Hearing Officer will be in accordance with Article 3.02. Engineer.
- C. The Engineer reserves the right to order the Contractor to terminate any subcontract if, in the Engineer's opinion, the Subcontractor fails to comply with the applicable requirements of this Contract.
- D. Nothing herein contained shall create any contractual relation between any Subcontractor and the District or shall relieve the Contractor of any liability or obligation hereunder.
- E. All contracts with Subcontractors and lower-tier Subcontractors and purchase agreements with Suppliers and lower-tier Suppliers shall provide that they are freely assignable to the District or to the District's designee under the following conditions:
  - 1. The District terminates the Contractor's control of the Work in accordance with Article 4.22. Termination of Control; and
  - 2. The District directs such assignment.

**4.21. Assignment of Antitrust Claims**

- A. Government Code Sections 4550 through 4554 pertaining to the assignment of antitrust claims are incorporated herein in full by this reference.

**4.22. Termination of Control**

- A. The District may terminate the Contractor's control of the Work at any time upon a determination that the same is in the best interests of the District.



**4.23. Termination of Contract**

- A. The District may terminate the Contract at any time upon a determination that the same is in the best interests of the District. Upon such termination, the rights, duties, and obligations of the parties shall be as stated in Section 8-1.14 of the 2010 State Specifications, wherein the words "Director" and "Engineer" shall mean the Engineer and the words "State" and "Department" shall mean District. Payment after termination of Contract shall be in accordance with the District's Standard and Special Provisions.

**4.24. Contractor's Cost Data**

- A. The District or any of its duly authorized representatives shall, until the expiration of four (4) years after filing the Notice of Completion and Acceptance under this Contract or any subcontract under it, have access to and the right to examine any Contractor or Subcontractor payroll, records of personnel, invoices of Material, records of plant and Equipment costs, and any and all other directly pertinent books, documents, papers, and records of such Contractor or Subcontractors involving transactions related to the said Contract or subcontracts. In the event State or Federal funds are involved in financing the Project, the State or Federal Government shall have the same rights of inspection as the District.

**4.25. Coordination With Utilities**

- A. In general, the location of existing utility facilities as shown on the Drawings is approximate. This information has been obtained from utility maps furnished by the various agencies involved; the District does not guarantee either the correctness of the locations or the extent of such locations.
- B. California Government Code Section 4215 does not require public agencies to indicate the presence of service laterals or appurtenances whenever the presence of such utilities can be inferred from the presence of other visible facilities (e.g., buildings, meter boxes, junction boxes) on or adjacent to the construction site. Service laterals (e.g., house sanitary, water, electrical, gas, cable TV, storm or telephone cables, appurtenances) may not all be shown on the Drawings. No changes in the Contract Price(s) or the Contract Time(s) shall be made due to the presence of unidentified or incorrectly located service laterals or appurtenances. It shall be the responsibility of the Contractor to ascertain the exact location of the utility facilities.
- C. Unless otherwise indicated on the Drawings or specified in the Specifications, the Contractor shall maintain in service all utilities, including house services, power, lighting, and telephone conduits, and any other surface or subsurface structure or facility of any nature that may be affected by the Work; provided, however, that the Contractor, for convenience, may arrange with the owner to temporarily disconnect house service lines or other facilities along the line of the Work. The cost of disconnecting and restoring such utilities shall be borne by the Contractor.

- D. In the event that a main or trunk-line utility facility is encountered that interferes with the Work and that is neither shown on the Drawings nor specified in the Specifications, the Contractor shall immediately notify the District in writing. The District may have the appropriate utility company or public agency relocate the facility, or the District may direct the Contractor to relocate the facility in accordance with Article 3.06. Changes in the Work.
- E. In the event that a main or trunk-line utility facility is encountered that interferes with the Work and that the Contractor believes is not shown on the Drawings or indicated in the Specifications with Reasonable Accuracy, the Contractor shall immediately notify the District in writing.
  - 1. If the Engineer determines that the main or trunk-line utility facility was shown on the Drawings or was indicated in the Specifications with Reasonable Accuracy, the Contractor shall be solely responsible for relocation or removal; no additional time shall be granted nor additional payment made, for any additional Work required.
  - 2. If the Engineer determines that the main or trunk-line utility facility was not shown on the Drawings or was not indicated in the Specifications with Reasonable Accuracy, the District may have the appropriate utility company or public agency relocate the facility, or the District may direct the Contractor to relocate the facility in accordance with Article 3.06. Changes in the Work.
- F. When a delay in the completion of the Project is caused by the failure of the District or by the owner of a utility facility to provide for removal or relocation of existing main or trunk-line utility facilities that are not shown on the Drawings or that are not indicated in the Specifications or that are not shown on the Drawings or indicated in the Specifications with Reasonable Accuracy, the Contract Time(s) shall be extended in accordance with Article 3.08. Change in Contract Time(s).

**4.26. Asbestos-Related Work**

- A. The Contractor shall comply with California Business and Professions Code Section 7058.5, which states that no Contractor shall engage in asbestos-related work, as defined, unless certified by the Contractor's State License Board to do so.
- B. The Contractor shall comply with California Labor Code Section 6501.5 relative to asbestos related work, the applicable provisions of the Code of Regulations, Title 8 General Industry Safety Orders, and BAAQMD Regulation 11 Rule 2.

## **SECTION 5. PROSECUTION AND PROGRESS OF WORK**

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### **5.01. Assignment**

- A. The performance of the Contract may not be assigned except upon consent of the Board of Directors. Consent shall not be given to any proposed assignment that would relieve the original Contractor or surety of its responsibilities set forth in the Contract.
- B. The Contractor may assign moneys due in accordance with the Contract; such assignment shall be recognized by the District if given proper notice thereof, to the extent permitted by law. Assignment of moneys shall be subject to all proper setoffs in favor of the District and to all deductions provided for in the Contract. All money withheld, whether assigned or not, shall be controlled by the District.

### **5.02. Notice to Proceed**

- A. The Notice to Proceed (NTP) shall be issued by the Engineer within ten (10) Days after receipt of the signed Agreement and after approval by the District of the contract bonds and insurance documents. The NTP authorizes the Contractor to proceed with the Work and establishes the First Chargeable Day of the Contract.

### **5.03. Commencement of Work**

- A. The First Chargeable Day as specified in the NTP will be at least ten (10) Days after the date of said Notice.
- B. The Contractor shall provide written notice to the Engineer, at least 2 working days in advance, of the date the Contractor intends to start work on site.

### **5.04. Professional Scheduler**

- A. All Detailed Progress Schedules shall be prepared and updated throughout the Contract Time(s) by a Schedule Professional who has, at a minimum, five (5) years of recent, verifiable experience in preparing, updating, and maintaining computerized Critical Path Method (CPM) construction schedules using Oracle Primavera, Microsoft Project, or similar scheduling software on at least two (2) completed construction projects of a similar size and degree of complexity as this Project.
- B. Prior to the Contractor's submission of the initial Detailed Progress Schedule, the Contractor shall submit and receive a favorable review of the résumé and professional references of the proposed Scheduler. The references shall be from at least two (2) project owners or construction managers familiar with the Scheduler's work on projects identified in the Scheduler's résumé. The District reserves the right to reject the proposed Scheduler based on lack of qualifications as defined in this Article.

**5.05. Progress Schedules**

- A. The Contractor is responsible for scheduling the sequence of its Work in all Progress Schedule(s) as described below.

**5.05.01. Preliminary Progress Schedule**

- A. Within ten (10) Days of the First Chargeable Day of the Contract as specified in the NTP, the Contractor shall submit to the Engineer a Preliminary Progress Schedule. This schedule shall include all activities that are planned to occur within the first 45 Days of the Contract.

**5.05.02. Baseline Progress Schedule**

- A. Within 30 Days of the First Chargeable Day of the Contract as specified in the NTP, the Contractor shall submit its initial Detailed Progress Schedule, which, if accepted, shall become the Baseline Progress Schedule for the Project. The submittal shall be in hard copy and native electronic format and shall fully conform to the numbered items below:
  - 1. The schedule shall be prepared using Oracle Primavera, Microsoft Project or similar Precedence Diagramming Method (PDM) scheduling software.
  - 2. The Baseline Progress Schedule shall be a Critical Path Method (CPM) schedule that is comprehensive, credible, well-constructed, and controlled. The schedule shall include input from its major Subcontractors and Suppliers and represent the complete scope of work. It shall represent the planned order of significant activities to complete the Work within the time allowed under this Contract. Any Detailed Progress Schedules shall be presented in sufficient detail such that sequence and interdependence of activities of the Project can be identified. The schedule shall include proper logic and adequate activity durations and show a logical critical path and Controlling Items of Work.
  - 3. The schedule shall account for on-site and off-site activities, including, but not limited to, permits, mobilization, and submittals (prepare and submit, review and approve, revise and resubmit); fabrication and delivery, installation, construction, system shutdowns, testing and start-up; training of District personnel; deficiency list; closeout; and demobilization. The schedule shall include key Milestones; reviews by the District, regulatory agencies, and other third parties of the Work; construction and sequencing constraints as specified in these Specifications; construction Work by the District forces or other third parties that interface with the Work; District-managed activities, such as the District furnishing Equipment; removal or relocation of interfering utilities by third parties; delivery of operation and maintenance manuals; and adequate time for Work completion and closeout activities.

4. Activity calendars shall reflect the planning basis and any Contract restrictions. All non-work Days and work hours shall be explained for each calendar.
5. The schedule shall reflect any limitations on work hours required by the Contract and any permit restrictions and conditions that are required.
6. Each schedule activity shall include a unique ID number and description, pertinent predecessors and successors, start/finish dates, an assigned workday calendar, a duration, percent complete, calculated float and activity codes to group the Work into Work Breakdown Structure (WBS) categories, location, responsibility, trade, and other rational groupings to facilitate sorting and filtering of the schedule activities.
7. Activities making up the critical path for the entire Contract and the critical path for each specific designated portion of the Work shall be identified. The network diagram shall be organized to indicate a continuous flow of progress of activities from left to right.
8. Except for concrete curing, submittal review, Equipment fabrication and deliveries, schedule activities shall be no longer than 20 working days. Activities longer than 20 working Days shall be subdivided into sub elements of work.
9. The Contractor shall submit a tabular listing of the schedule along with the network diagram.
10. The use of float suppression techniques, such as preferential sequencing (arranging critical path through activities more susceptible to District-caused delay); special lead/lag logic restraints; zero-total or free-float constraints; extended activity times; or imposing constraint dates other than required by this Contract shall be cause for rejection of the schedule using such techniques. The use of Resource Leveling (or similar software features) for the purpose of artificially adjusting activity durations to consume float and influence the critical path shall also be cause for rejection.
11. The Engineer's favorable review of the schedule shall not relieve the Contractor of errors and omissions in tasks, durations, or logic. No time extensions shall be granted because of errors or omissions on the schedule. It is the Contractor's responsibility to incorporate all necessary activities to cover the entire Work scope.
12. A favorably reviewed Baseline Progress Schedule is a condition precedent to payment.

**B. Cost Loading**

1. Work activities other than third-party and District-managed activities shall be cost loaded. No activity shall have a value greater than \$50,000 except for activities representing major Equipment purchases or installation. Progress Schedules exhibiting front-loaded costs are unacceptable. The Contractor shall revise the Schedule of Values (SOV) pursuant to Article 6.01. Schedule of Values until accepted by the Engineer.
2. The Contractor shall create two (2) hierarchical schedule activity codes in the scheduling software: (i) Bid Item and (ii) SOV. Each code shall have line item name corresponding to the accepted Bid items and SOV titles. Costs shall progressively roll up from the activity level to the SOV level; SOV codes shall roll up to the Bid Item level.
3. Each cost-loaded schedule activity shall be assigned one of the SOV codes. An activity shall not contain work assigned to more than one SOV code. The SOV code will be used to summarize cost-loaded activity values to produce the required SOV submittal. Table 6-1, referenced in Article 6.01.02. Submittal, is an acceptable form for this submittal. The SOV submittal shall be produced from the Progress Schedule software.
4. The sum of the monetary values of the activities assigned to each SOV code shall be equal to the accepted amount of that SOV line item. The sum of all the cost-loaded activities in the latest accepted schedule update shall total the latest approved Contract amount.

**C. Early Completion Schedule**

1. The District is not required to accept an earlier (advanced) schedule (i.e., one that shows early completion date[s] but within the specified Contract Time[s]). Time(s) for completion of Work shall adhere to the Contract Time(s) specified in these Specifications unless earlier time(s) of completion is requested by the Contractor and agreed to by the District. Any such agreement shall be formalized by a Change Order or by a DCO.
2. If the Contractor submits any Baseline Progress Schedule or Detailed Progress Schedules showing any Contract Time(s) earlier than a corresponding, specified Contract Time(s) and that early completion date is not agreed to by both parties through a Change Order or through a DCO, the duration from such early completion date and from the specified Contract Time(s) is considered "float" and shall belong to the Project.
3. Accordingly, the Contractor in this situation is to show in the Baseline Progress Schedule or in the Detailed Progress Schedules a specific activity identified as Project Completion Float, which may be adjusted as that float is used or increased. The Contractor shall not be entitled to a

time extension due to any cause or reason that consumes Project Completion Float.

**5.05.03. Revised Baseline Schedules**

- A. If the Contractor desires to make a change to the Baseline Progress Schedule after commencing construction, a revised Baseline Progress Schedule and associated narrative shall be submitted to the District at least 15 Days prior to any such change.
- B. The narrative shall state the reasons for the change; any change to the Baseline Progress Schedule shall be discussed in the submittal to the District.
- C. A revised Baseline Progress Schedule shall not become effective until accepted by the District.

**5.05.04. Updates to the Detailed Progress Schedules**

- A. Any and all updates or revisions to the initial Detailed Progress Schedule shall conform to the same requirements as the Baseline Schedule in Article 5.05.02. Baseline Progress Schedule.
- B. The Contractor shall submit an update of the prior month's Detailed Progress Schedule to the Engineer before the twenty-fifth Day of each month.
- C. Each schedule update shall incorporate all current information, including progress. Actual start and finish dates shall be updated and shall match daily reports. Work completed shall be shown with actual start and finish dates for each activity. Work in progress shall be shown with the actual start date and the percentage of Work completed as of the last date of the previous month.
- D. The Contractor shall also submit a narrative report that shall include a description of problem areas, state the reasons for any changes made to the schedule activities, current and anticipated delaying factors and their impact, and an explanation of corrective actions taken or proposed.
- E. Progress status shall be evaluated on the basis of float on the critical path at the time of updating, with negative float indicating the Project is behind schedule and positive float indicating ahead-of-schedule status.
- F. Acceptance of the Detailed Progress Schedule updates is a condition precedent to payment.
- G. Recovery Schedules
  - 1. At any time that construction progress lags behind any Baseline Progress Schedule or any updated/revised Detailed Progress Schedule accepted by the Engineer by either ten (10) working days or by five (5) percent of the remaining time to complete the Contract, whichever is less, the

Contractor shall prepare and submit a Recovery Schedule to the Engineer. This Recovery Schedule shall demonstrate how construction will be expedited and executed to achieve the contractual completion dates (either Milestone Completion or Project Completion dates).

2. Activity ID numbers shall be the same as in the most current and accepted and updated Detailed Progress Schedule. ID numbers of deleted activities shall not be reused on the Recovery Schedule. New ID numbers (not used in the most current and accepted Detailed Progress Schedule) shall be used for new activities.
3. A revised narrative describing the remaining Work as reflected in the Recovery Schedule shall be included and shall include a separate listing of all activities deleted, changed, or added with an explanation for each change.
4. Once favorably reviewed by the Engineer, the Recovery Schedule shall become the current, revised Detailed Progress Schedule against which future progress is to be measured.

#### **5.05.05 Time Impact Analysis**

- A. If the Contractor foresees that an Excusable Delay, as defined, will impact a Controlling Item of Work, a written request for adjustment of the impacted Contract Time(s) and supporting data shall be promptly submitted to the Engineer in accordance with Article 3.08. Change in Contract Time(s). To substantiate the Contractor's request, the supporting data shall include a Time Impact Analysis (TIA) based on the updated and accepted Detailed Progress Schedule for the month preceding the Excusable Delay.
- B. The TIA shall represent Excusable Delays as separate activities or as groups of activities. These activities shall be entered into the relevant part of the schedule update that was accepted just prior to the time the Excusable Delay occurred. In case of a deductive change reducing the quantity of Work, activities representing the deleted scope shall be dissolved or its estimated duration adjusted to reflect the reduction.
- C. The Contractor shall submit a written report with the TIA describing the Excusable Delay by the occurrence and the impact of the event time computation on all affected activities.
- D. Only changes or delays that affect or create Controlling Items of Work as defined by the schedule shall result in time adjustments. The Engineer shall determine if a request for time extension is warranted.
- E. Total float or slack is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date of any activity in the schedule. Total float or slack is not for the exclusive use or benefit



of either the District or the Contractor. It is an expiring resource available to either party on a first-come, first-served basis.

**5.05.06. "Three-Week-Look-Ahead" Schedules**

- A. The Contractor shall provide Three-Week-Look-Ahead Schedules on a weekly basis and present them at the weekly progress meetings.
- B. The Three-Week-Look-Ahead Schedules shall be prepared in the form of a bar chart breaking down activities into detailed subtasks on the Contractor's Detailed Progress Schedules. Subtasks shall identify related activities on the Detailed Progress Schedules and responsibility for completion of the sub task.
- C. The Contractor shall notify the Engineer in writing of any deviation from the current Three-Week-Look-Ahead Schedule within 24 hours of identification of said deviation.
- D. The Three-Week-Look-Ahead Schedules shall indicate inspections by the Engineer or by regulatory agencies and construction Work by the District forces or by other third parties that interface with the Work.

**5.05.07. Payment**

- A. Contractor shall submit a Baseline Progress Schedule, detailed monthly Progress Schedule updates, and Recovery Schedules to the District. The schedules shall be favorably reviewed by the District before a pending payment request is approved.
- B. Full compensation for furnishing, updating, revising, and submitting Detailed Progress Schedules and associated reports shall be considered as included in various Contract items of work; no additional payment shall be made.
- C. Submittal and favorable review of Detailed Progress Schedules and their components that meet the requirements of Article 5.05. Progress Schedules in this Section is a condition precedent to making a payment request.

**5.06. Temporary Suspension of Work**

- A. By written order to the Contractor, the Engineer may suspend the Work, wholly or in part, for an indefinite period or for such period as the Engineer may deem necessary, for any of the following reasons:
  - 1. Weather conditions or other conditions that are unfavorable for the proper prosecution of the Work.
  - 2. Failure of the Contractor to carry out orders given or to perform any provisions of the Contract.
  - 3. For the convenience and benefit of the District.

- B. Such suspension shall be effective upon receipt by the Contractor of the written order suspending the Work and shall be terminated upon receipt by the Contractor of the written order terminating the suspension.
- C. If the Engineer orders a suspension of all or of a portion of the Work that is on a critical path, pursuant to A.1 or A.3 in this Article, this shall be cause for a time extension if it impacts Milestone completion.

**5.07. Liquidated Damages**

- A. If the Work is not finished or completed by the Milestone dates in the Contract, it is agreed that damage shall be sustained by the District and that it is and shall be impracticable and extremely difficult to ascertain and determine actual damage that the District will sustain. It is agreed that the Contractor shall pay to the District the sum(s) set forth in the Special Provisions. Liquidated Damages shall be assessed separately and independently.
- B. The Contractor agrees to pay Liquidated Damages herein provided for, and further agrees that the District may deduct the amount thereof from any moneys due, or that may become due, to the Contractor under the Contract. Imposition of Liquidated Damages shall not preclude the District from taking other action as deemed appropriate to ensure performance of the Contract and shall not relieve the Contractor of its responsibility to comply with these Specifications.

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## **SECTION 6. MEASUREMENT AND PAYMENT**

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### **6.01. Schedule of Values**

#### **6.01.01. Preparation**

- A. The Contractor shall develop the Schedule of Values (SOV) in the Baseline Progress Schedule.
- B. Progress payments shall not be made until the SOV has received a favorable review by the Engineer.
- C. Each schedule activity representing a component of lump-sum Bid items shall include a directly proportional amount of the Contractor's overhead and profit. The Contractor's overhead and profit shall be completely distributed among all schedule activities. The Contractor shall provide additional cost documentation to the Engineer when requested so that values can be verified.
- D. The Contractor shall list and maintain separately on the SOV and on any Detailed Progress Schedule all values for items of Equipment that will be submitted for on-site Material payment. These Material items shall not be "progressed" as a part of the physical progress assessment.
- E. The Contractor shall prepare a Cash Flow Summary and a corresponding Cash Flow "S" Curve indicating the total dollar amount of Work planned for each month of the Project and shall equate the sum of monthly amounts to the Total Bid Price.

#### **6.01.02. Submittal**

- A. The Contractor shall submit to the Engineer the detailed SOV that conforms to Table 6-1 as part of its Baseline Progress Schedule and Detailed Progress Schedule Update submittals.
- B. The SOV submittals shall include a Cash Flow Summary and a Cash Flow "S" Curve.

#### **6.01.03. Revision**

- A. All construction Change Order authorizations shall be added to updated and revised Detailed Progress Schedules as cost-loaded activities and shall be coded to appropriate SOV line items. Additional cost documentation shall be provided to the Engineer when requested.
- B. The Contractor shall not change the final approved SOV without the approval of the Engineer. The SOV has a one-to-one direct relationship to the list of activities on the Contractor's Progress Schedule. Additions or deletions of activities on the Contractor's Detailed Progress Schedules shall require line item additions or deletions in the SOV. Any revision to the SOV shall be submitted with the monthly Detailed Progress Schedule updates.

**6.02. Application for Payment**

- A. Applications for payment shall be based upon actual progress as measured on the accepted Detailed Progress Schedules and as in the SOV.

**6.02.01. Preparation**

- A. Measurement of Quantities and Percent Complete
  - 1. All Work, except Work based on Time and Materials, shall be paid for at the Contract Price(s) per unit of measurement and shall be measured by the Engineer in accordance with the English system of measurement. Unless otherwise specifically provided, the Engineer shall compute quantities by a method that, in the Engineer's opinion, is best suited to obtain an accurate determination. The weights of metalwork, pipe, and other metal parts to be paid for on the basis of weight shall be determined by the Engineer. The District will not provide scales for weighing Material. The Engineer shall determine the weight of each part or item in the most practicable manner and shall use for that purpose manufacturer weights, or in their absence, catalog weights or estimated weights, in that order; weights of nonmetallic coatings shall be excluded.
  - 2. Progress payments shall be based on percent complete for each applicable cost-loaded schedule activity as determined by visual observation of the Project by the Contractor and by the Engineer on a monthly basis. The schedule activity shall be updated to reflect percent complete. The schedule shall roll up activities to an activity code for each SOV and for each Bid Item.
- B. Inclusion of Material On-Site
  - 1. Partial payments may be made by the District to the Contractor for Material and Equipment furnished and delivered to the Project site but not yet incorporated into the Work, at the District's sole discretion, and only if the Material and/or Equipment meet all of the following requirements:
    - a. Material and/or Equipment are fabricated and/or are manufactured goods or Equipment relatively unique to the Project.
    - b. The Contractor can transfer clear title to the District.
    - c. If the Contractor does not have Builder's Risk coverage, the Contractor shall, at no additional cost to the District, (i) insure the Material against theft, fire, loss, vandalism, and malicious mischief; (ii) name the District as additional insured; (iii) deliver this policy or certificate of this insurance to the District; and (iv) receive the District's acceptance of the policy or certificate of insurance. Insurance shall not be cancelable for at least 30 Days;

cancellation shall not be effective until certificate thereof is given to the District.

- d. Submittals for the Material and/or Equipment have been favorably reviewed by the District.
  - e. The Material and/or Equipment have been delivered, identified as property of the District, and physically separated from other Material; protected, properly stored, and maintained at the site in accordance with manufacturer requirements.
- 2. Only the Contractor's actual cost for Material may be paid prior to inclusion in the Work. The Contractor's actual cost for the Material must be supported by Supplier invoices, proof of payment by the Contractor, and other supporting documentation warranting that the Contractor has received and owns the Material or Equipment free and clear of all liens, charges, security interests, and encumbrances.
  - 3. Material delivered to the site fewer than 30 Days prior to their scheduled incorporation shall not qualify for partial payment consideration.
  - 4. Temporary construction material (e.g. shoring) do not qualify for partial payment.
  - 5. Final payment shall be made only for Material or Equipment incorporated into the Work. Upon Acceptance of the Work, all Material remaining for which advance payments had been made shall revert to the Contractor, unless otherwise agreed; partial payments made for these items shall be deducted from the final payment for the Work.
  - 6. Payment for Material on-site does not relieve the Contractor of its obligations pursuant to the Contract.

**6.02.02. Submittal of Application for Payment**

- A. On the 25th of each month, the Contractor shall prepare and submit the Application for Payment to the District. Each progress pay request is to include payment for Work completed up to and including the 25th of the month. The basis for partial payments of lump sum or other unit Contract items shall be determined by agreement between the Engineer and the Contractor.
- B. Each Application for Payment shall be transmitted under the signature of the responsible authorized representative of the Contractor.
- C. The Contractor's properly submitted Application for Payment request and request for final payment shall include the following substantiating data:
  - 1. Cover letter identifying:

- a. the Project name and Project number;
  - b. application number and date; and
  - c. a detailed list of enclosures.
2. Contractor monthly Progress Pay Estimate summary sheet.
  - a. The pay request submitted by the Contractor shall contain a source document that provides backup information on how the estimate was prepared.
  - b. A source document is defined as the basic document used to record or calculate quantities.
  - c. The source document must contain the appropriate Contract Bid Item, the location of the installation, the necessary measurement and/or calculations, and the name of the person preparing the document.
3. Request for payment that meets the criteria listed in 6.02.01.B. Inclusion of Materials On-site.
  - a. This form requires a description of each specific Material, quantity, value, and submittal review status substantiating evidence of purchase and cost and a completed affidavit.
4. Certified weekly payroll(s) for the pay estimate period in accordance with the Contract Prevailing Wage requirements.
5. Small/Micro Business Enterprise Utilization Report, if required.
6. Favorably reviewed Detailed Progress Schedule update with Cash Flow Summary and Cash Flow "S" Curve.
7. Daily Extra Work Report Form signed by both the District inspector and by the Contractor's representative, if applicable.
8. Satisfactory evidence that the Engineer has approved the action taken to correct any Noncompliance Notices and a numbered copy of the noncompliance log.
9. Written acknowledgement by the Engineer that the as-built Drawings have been updated that month.

**6.02.03. Review of Application for Payment**

- A. Upon receipt of a payment request, the District shall review the payment request for the purpose of determining that the payment request is a proper payment request. Any payment request determined not to be a proper payment request

suitable for payment shall be returned to the Contractor no later than seven (7) Days after receipt. A payment request returned pursuant to this paragraph shall be accompanied by a letter citing reasons why the payment request is not proper. The following are examples of an improper payment request:

1. The item of Work requested to be paid was not performed.
2. The Work being requested to be paid has already been paid in previous Progress Pay Estimates.
3. The Work performed and requested to be paid was not done in accordance with the Contract (noncompliance).
4. The quality of the finished product is unacceptable.
5. The source documentation is inaccurate.
6. The Daily Extra Work Reports are not properly filled out.
7. There is a failure to submit an approved SBE Utilization Report, if required.
8. There is a failure to submit any of the Substantiating Documentation in Article 6.02.02. Submittal of Application for Payment.

**6.02.04. Payment**

- A. Payment for all items of Work at the unit or lump-sum price shall be considered as full compensation for furnishing all labor, Material, tools, Equipment, and incidentals necessary to complete the item of Work; no additional payment shall be made. Payment for items of Work called for in the Specifications or shown on the Drawings but that are not separately identified in the Proposal Form shall be compensated as part of the Bid price of one or more of the items that are listed; no additional payment shall be made.
- B. Non-Waiver: No progress payment made to the Contractor or the Contractor's sureties shall constitute a waiver of the right to assess Liquidated Damages pursuant to the Contract Documents.
- C. The District shall pay within 30 Days valid, undisputed amounts, less any retention, withholds required by law or allowed by this Contract.
- D. If the District fails to make any progress payment within 30 Days after receipt of an undisputed and properly submitted payment request from the Contractor, the District shall pay interest to the Contractor equivalent to the legal rate set forth in the Code of Civil Procedure, Section 685.010, subdivision (a).



- E. The number of Days available to the District to make a payment without incurring interest pursuant to this Section shall be reduced by the number of Days by which the District exceeds the seven (7)-day return requirement set forth in Article 6.02.03. Review of Application for Payment, paragraph A.
- F. Unless otherwise indicated in the Special Provisions, the District shall retain five (5) percent of the estimated value of Work done and five (5) percent of the value of the Material so estimated to have been furnished and delivered and unused as aforesaid and shall pay to the Contractor, while carrying on the Work, the balance not retained as aforesaid after deducting there from all previous payments and all sums to be kept or retained under the provisions of the Contract. No estimate or payment shall be required to be made when, in the judgment of the Engineer, the Work is not proceeding in accordance with the provisions of the Contract, or when, in the Engineer's judgment, the total value of the Work done since the last estimate amounts to less than \$1,000. No estimate or payment shall be considered to be acceptance of the Work. All progress estimates and payments shall be subject to correction in the final estimate.
- G. Escrow in Lieu of Retention
  - 1. At the request of the Contractor, the District shall permit the substitution of securities or certificates of deposit equivalent to the amount of any monies withheld by the District as above provided. The deposit shall, in that event, be with the District or with a State- or Federal-chartered bank in California as the escrow agent.
  - 2. Alternatively, upon written request of the Contractor, the District shall make payments of the retention as it is earned directly to the escrow agent.
  - 3. The Contractor shall bear the expense of the District and of the escrow agent in connection with the escrow deposit made.
  - 4. Securities or certificates of deposit to be placed in escrow shall include those listed in Government Code Section 16430, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and by the District. Unless otherwise permitted by the escrow agreement, securities or certificates of deposit to be placed in escrow shall be of a value at least equivalent to the amounts of retention to be paid to the Contractor pursuant to this Section.
  - 5. When the District makes payment of retentions directly to the escrow agent, the Contractor may direct, subject to approval of the District, the investment of the payments into securities.
  - 6. The Contractor shall enter into an escrow agreement satisfactory to the District; this agreement shall be substantially similar to that specified in Public Contract Code Section 22300.

7. The Contractor shall obtain the written consent of the surety to the agreement.

**6.02.05. Withholding from Payments**

- A. The District may, at its option and at any time, withhold progress payment(s) or retain from any amounts due the Contractor sums sufficient to cover for one (1) or more of the following reasons:
  1. Stop-Payment Notice Claims filed pursuant to the Civil and Labor Code.
  2. Contractor has failed to comply with State law prompt payment requirements with regard to payments to Subcontractors.
  3. Third-party claims have been filed or there is reasonable evidence indicating probable filing of these claims.
  4. Liquidated Damages due or expected.
  5. The Contract sum has been reduced by Change Orders.
  6. Damage has occurred to the District or to another Contractor.
  7. The Engineer determines that:
    - a. the Work cannot be completed for the unpaid balance of the Contract sum;
    - b. if any Contractor's Detailed Progress Schedule forecasts inexcusable late completion, or if the District determines that the Work will not be completed within the Contract Time(s), and that the current unpaid balance and retention will not be adequate to cover actual or Liquidated Damages for the anticipated Delay;
    - c. the Contractor persistently fails to perform the Work in accordance with the Contract Documents;
    - d. the Contractor fails to submit timely Change Order cost proposal breakdowns and documentation in accordance with the Contract Documents;
    - e. the Contractor fails to timely submit the Preliminary Progress Schedules, or Detailed Progress Schedules, or any updates or revisions to those submittals, and reports in accordance with the Contract Documents;
    - f. the Contractor fails to maintain detailed, timely, updated as-built documents or closeout items.

- g. the Contractor fails to submit certified payroll records in accordance with the Contract Documents and prevailing wage requirements;
- h. the Contractor has not submitted an approved SBE utilization report;
- i. the Contractor fails to submit a proper payment request in accordance with the Contract Documents;
- j. the Contractor fails to comply with the submittal requirements requiring rereview of the submittal;
- k. the Contractor fails to submit a fully compliant Quality Control Plan;
- l. there has been material noncompliance with the insurance requirements; or
- m. the Contractor fails to comply with any other requirements of the Contract Documents.

**6.03. Final Payment**

- A. As soon as practicable after completion of the Work, the Engineer shall prepare in writing and furnish to the Contractor the final estimate of the quantities of Work done and all payments due as part of the Contract; this estimate will show deductions for prior payments and any other amounts to be retained or withheld as part of the Contract. The amount determined due, less the amount retained and/or withheld, shall be paid.
- B. The retained amount will not be due or payable until 35 Days after the filing of the Notice of Completion of Contract and Acceptance of Work, subject to any withholds required by law or by the Contract.
- C. Prior to release of the retained amount, the Contractor shall furnish the District with a release of all Claims by the Contractor against the District arising by virtue of this Contract. The release of Claims may include disputed Contract Claims in stated amounts as the Contractor may specifically exclude from the operation of the release pursuant to acceptance of Final Payment.

# Measurement and Payment

# Section 6

Tesla Update 1 received 6/23/09			Schedule of Values Detail - Chris Saldon				07-Jul-09 13:19		
Cost Account ID#	Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	Budgeted Total Cost	Actual Total Cost	Cost % Complete
Total			609.5d	21-Oct-08 A	16-Dec-11	139.5d	\$51,420,562.00	\$15,666,462.65	30.61%
1.A.1.1			17.0d	10-Nov-08 A	10-Dec-08 A		\$1,120,000.00	\$1,120,000.00	100%
1.A.1.1	P101040130	90% DESIGN	15.0d	10-Nov-08 A	10-Dec-08 A		\$1,120,000.00	\$1,120,000.00	100%
1.A.1.2			30.0d	11-Dec-08 A	23-Feb-09 A		\$2,140,000.00	\$2,140,000.00	100%
1.A.1.2	P101040150	80% DESIGN	30.0d	11-Dec-08 A	23-Feb-09 A		\$2,140,000.00	\$2,140,000.00	100%
1.A.1.3			87.1d	11-Dec-08 A	28-May-09 A		\$1,240,000.00	\$878,500.00	70.85%
1.A.1.3	P101040180	SITE CIVIL DESIGN 90%	30.0d	11-Dec-08 A	23-Feb-09 A		\$0.00	\$0.00	0%
1.A.1.3	P101040190	ARCHITECTURAL 90%	30.0d	11-Dec-08 A	23-Feb-09 A		\$0.00	\$0.00	0%
1.A.1.3	P101040250	90% DESIGN	48.0d	24-Feb-09 A	28-May-09 A		\$1,240,000.00	\$878,500.00	70.85%
1.A.1.4			30.0d	10-Nov-08 A	19-Dec-08 A		\$100,000.00	\$82,190.23	82.19%
1.A.1.4	P101040100	ONSITE GEOTECHNICAL INVESTIG...	28.0d	10-Nov-08 A	19-Dec-08 A		\$100,000.00	\$82,190.23	82.19%
1.A.1.5			17.0d	10-Nov-08 A	28-Nov-08 A		\$25,000.00	\$25,000.00	100%
1.A.1.5	P101040110	POTHOLE RESULTS & SITE SURVE...	15.0d	10-Nov-08 A	28-Nov-08 A		\$25,000.00	\$25,000.00	100%
1.A.2.1			83.0d	01-Jun-09	28-Aug-09	253.0d	\$2,624,000.00	\$0.00	0%
1.A.2.1	2A01040100	100% DESIGN	35.0d	01-Jun-09	20-Jul-09	48.0d	\$2,500,000.00	\$0.00	0%
1.A.2.1	2A01040120	ADDRESS REVIEW COMMENTS & ...	5.0d	20-Aug-09	28-Aug-09	244.0d	\$124,000.00	\$0.00	0%
1.B.1.1			326.0d	21-Oct-08 A	30-Nov-09	9.0d	\$2,217,000.00	\$2,155,000.00	49.3%
1.B.1.1	SU02574100	SUBMIT STEEL PIPE & FABRICATE...	0.0d	21-Oct-08 A			\$1,000.00	\$1,000.00	0.05%
1.B.1.1	SU02574110	SUBMIT STEEL PIPE FABRICATION...	5.0d	03-Dec-08 A	17-Dec-08 A		\$1,000.00	\$972.00	97.2%
1.B.1.1	PR02574100	PROCURE 144" & 84" HEADERS (S...	115.0d	06-Nov-08 A	18-Jun-09	10.0d	\$959,481.00	\$932,596.09	97.2%
1.B.1.1	PR02574110	PROCURE 120" & 144" PIPE (S.D. - ...	149.0d	06-Nov-08 A	29-Sep-09	4.0d	\$491,874.00	\$477,907.13	97.2%
1.B.1.1	PR02574120	PROCURE INLET & OUTLET TIE-IN...	231.0d	06-Nov-08 A	30-Nov-09	9.0d	\$296,578.00	\$288,245.78	97.19%
1.B.1.1	PR02574130	PROCURE 48" BRANCH PIPING (S...	110.0d	06-Nov-08 A	18-Jun-09	38.0d	\$467,267.00	\$454,279.00	97.22%
1.B.1.10			0.0d	10-Nov-08 A	10-Nov-08 A		\$2,594,444.00	\$1,026,157.00	39.55%
1.B.1.10	P101040120	BONDS & INSURANCE	0.0d	10-Nov-08 A	10-Nov-08 A		\$2,594,444.00	\$1,026,157.00	39.55%
1.B.1.2			253.0d	03-Nov-08 A	30-Sep-09	8.5d	\$757,077.00	\$757,077.00	100%
1.B.1.2	SU15100100	SUBMIT 84" & 144" VALVES (S.D. - ...	5.0d	03-Nov-08 A	13-Nov-08 A		\$1,000.00	\$1,000.00	100%
1.B.1.2	PR15100100	PROCURE 84" VALVES (S.D. - REQ...	149.0d	08-Jan-09 A	29-Sep-09	4.0d	\$251,773.00	\$251,773.00	100%
1.B.1.2	PR15100110	PROCURE 144" VALVES (S.D. - RE...	185.0d	25-Nov-08 A	30-Sep-09	8.5d	\$504,304.00	\$504,304.00	100%
1.B.1.3			202.0d	10-Dec-08 A	15-Jan-10	0.8d	\$1,102,273.00	\$1,051,281.00	95.37%
1.B.1.3	SU15100110	SUBMIT DeZURIK VALVES (S.D. - R...	5.0d	10-Dec-08 A	15-Dec-08 A		\$1,000.00	\$1,000.00	100%
1.B.1.3	PR15100120	PROCURE 48" DeZURIK VALVES (S...	150.0d	02-Mar-09 A	15-Jan-10	-25.4d	\$550,636.00	\$525,308.74	95.4%
1.B.1.3	PR15100130	PROCURE 90", 78", 66" & 60" DeZUR...	156.0d	02-Mar-09 A	21-Aug-09	100.5d	\$550,637.00	\$524,974.28	95.34%
1.B.1.4			265.0d	13-Mar-09 A	05-Apr-10	87.0d	\$307,500.00	\$0.00	0%
1.B.1.4	SU11298100	SUBMIT CO2 SYSTEM	10.0d	13-Mar-09 A	08-Oct-09	65.0d	\$1,000.00	\$0.00	0%
1.B.1.4	PR11298100	PROCURE CO2 SYSTEM	110.0d	28-Oct-09	05-Apr-10	65.0d	\$306,500.00	\$0.00	0%
1.B.1.5			102.0d	29-Sep-09	18-Feb-10	44.5d	\$109,880.00	\$0.00	0%
1.B.1.5	SU11241100	SUBMIT CHEMICAL TANKS	5.0d	29-Sep-09	08-Oct-09	44.5d	\$1,000.00	\$0.00	0%
1.B.1.5	PR11241100	PROCURE CHEMICAL TANKS	80.0d	21-Oct-09	18-Feb-10	44.5d	\$108,880.00	\$0.00	0%
1.B.1.6			244.0d	01-Jun-09	06-May-10	49.0d	\$1,289,069.00	\$184,500.00	14.31%
1.B.1.6	SU16260100	SUBMIT EMERGENCY GENERATO...	5.0d	01-Jun-09	05-Jun-09	47.0d	\$1,000.00	\$1,000.00	100%
1.B.1.6	PR16260100	PROCURE EMERGENCY GENERAT...	220.0d	23-Jun-09	06-May-10	47.0d	\$1,288,069.00	\$183,500.00	14.25%
1.B.1.7			269.0d	23-Dec-08 A	15-Jan-10	-27.4d	\$75,605.00	\$75,605.00	100%
1.B.1.7	SU13420100	SUBMIT 48-IN MAG METERS (S.D. - ...	5.0d	23-Dec-08 A	28-Dec-08 A		\$1,000.00	\$1,000.00	100%
1.B.1.7	PR13420100	PROCURE 48-IN MAG METERS (S.D...	200.0d	19-Jan-09 A	15-Jan-10	-25.4d	\$74,605.00	\$74,605.00	100%
1.B.1.8			117.0d	11-Sep-09	23-Feb-10	53.5d	\$128,925.00	\$0.00	0%
1.B.1.8	SU11240100	SUBMIT CHEMICAL METERING PU...	5.0d	11-Sep-09	18-Sep-09	53.5d	\$1,000.00	\$0.00	0%
1.B.1.8	PR11240100	PROCURE CHEMICAL METERING P...	95.0d	05-Oct-09	23-Feb-10	53.5d	\$127,925.00	\$0.00	0%
1.B.1.9			143.0d	08-Aug-09	23-Feb-10	53.5d	\$15,750.00	\$0.00	0%
1.B.1.9	SU11247100	SUBMIT CHEMICAL TRANSFER PU...	5.0d	08-Aug-09	13-Aug-09	53.5d	\$1,000.00	\$0.00	0%
1.B.1.9	PR11247100	PROCURE CHEMICAL TRANSFER P...	120.0d	28-Aug-09	23-Feb-10	53.5d	\$14,750.00	\$0.00	0%
1.B.2.1.1			357.5d	21-Apr-09 A	03-Nov-10	38.5d	\$1,269,346.00	\$99,175.00	7.81%
1.B.2.1.1	SW02900100	PLANT TREES & TEMP IRR. SYSTEM	15.0d	08-Oct-10	27-Oct-10	34.5d	\$90,000.00	\$0.00	0%
1.B.2.1.1	SW02900110	HYDROSEED	4.0d	27-Oct-10	03-Nov-10	34.5d	\$16,000.00	\$0.00	0%
1.B.2.1.1	SW02200110	PREP ROAD SUBGRADE	10.0d	20-Jul-10	03-Aug-10	34.5d	\$155,000.00	\$0.00	0%
1.B.2.1.1	SW02500100	CONSTRUCT ROADS TO TOP OF S...	15.0d	17-Aug-10	08-Sep-10	54.5d	\$167,500.00	\$0.00	0%
1.B.2.1.1	SW02770100	CURBS & GUTTERS	15.0d	03-Aug-10	24-Aug-10	54.5d	\$87,448.00	\$0.00	0%
1.B.2.1.1	SW02510110	PAVE ROADS	10.0d	31-Aug-10	15-Sep-10	68.5d	\$161,331.75	\$0.00	0%
1.B.2.1.1	SW01900120	RELOCATE DSL LINE (S.D. - REQU...	15.0d	21-Apr-09 A	11-May-09 A		\$14,900.00	\$14,900.00	100%

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TASK filter: Cost Account Only.

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TABLE 6-1. SCHEDULE OF VALUES SAMPLE

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## **SECTION 7. SUBMITTAL MANAGEMENT**

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### **7.01. Submittal Requirements**

- A. This Article includes requirements and procedures for preparing and submitting submittals and other information required by the Contract Documents.
- B. Drawings listed in the Specifications shall be supplemented by the Contractor with the submittals required throughout the Contract Documents for the prosecution of the Work and for approval of Equipment. Submittals may include shop detail Drawings, fabrication Drawings, falsework and formwork Drawings, pipe layouts, and similar classes of Drawings, calculations, specifications, product data, samples, manuals, spare parts, photographs, survey data, schedules, or similar items required to be submitted to the Engineer by the Contract Documents.
- C. These submittals shall be favorably reviewed by the Engineer before any Work involving these submittals is performed. No change shall be made by the Contractor to any submittal after it has been favorably reviewed by the Engineer.
- D. Submittals shall contain all required, detailed information at a reasonable scale with enough views to clearly show the Work to be done or the item to be furnished and shall be properly checked.

### **7.02. Master Submittal List**

- A. Within 30 Days of the First Chargeable Day of the Contract as specified in the NTP and monthly thereafter, the Contractor shall submit an electronic copy of the Master Submittal List to the Engineer. This list shall be in Microsoft Excel spreadsheet format and shall identify all originally planned submittals. The purpose of this list is to assist in planning for submittal creation and review and to provide a monthly update of submittal review status. Items on this list shall be sorted by Specifications Number and shall include, at a minimum, the following information:
  - 1. Item number.
  - 2. Reference Specification Section number and paragraph.
  - 3. Description of submittal.
  - 4. Type of submittal (e.g., Shop Drawing, catalog, sample, certificate, test data, manual, other).
  - 5. Original preparer of the submittal to include preparer's name, firm name, telephone number, and email address.
  - 6. Estimated date for submission to the Engineer by the Contractor. Dates shall be coordinated with the Contractor's Progress Schedules to ensure sufficient time is allowed for processing submittals and for procurement of

Material prior to the start of a construction activity. The Contractor shall include submittals as activities in the Detailed Progress Schedules.

7. Actual date sent by the Contractor to the District.
  8. Actual date returned by the District to the Contractor.
  9. Submittal status.
- B. The Contractor shall identify in the master submittal list the submittals that may require long-lead times for manufacturing and/or for delivery and that must be submitted early to the Engineer for review.

### **7.03. Timing of Submittals**

- A. The Contractor shall make submittals promptly in accordance with the accepted Detailed Progress Schedules and in such sequence as to cause no Delay in the Work. The time allowed by the Contractor for submittal review shall also provide sufficient time for disapproval and resubmission.
- B. The sequence of submission of submittals shall be such that all information is available to the Engineer for review of each submittal as it is received. The Contractor is responsible for furnishing submittals in sufficient time for approval action, including resubmittal, without delaying construction.

### **7.04. Submittal Format**

- A. One (1) electronic copy and five (5) paper copies of each submittal shall be submitted.
- B. All submittals shall be clearly identified by reference to the Project name, Specification Section, Article, paragraph, Drawing number, or detail as applicable. Submittals shall be well organized, clear, and legible, and of sufficient size for clear presentation of the data. Data submitted shall describe the Materials, Equipment, or other items to be furnished, and where applicable, the system in sufficient detail to indicate full compliance with the requirements of these Contract Documents. Data shall consist of complete Materials and Equipment lists accompanied by catalog data sheets, cuts, performance curves, diagrams, or similar descriptive Materials. Materials and Equipment lists shall give, in each case, the name of the manufacturer, trade name, catalog reference, size, finish, and all other pertinent data.
- C. All submittals shall be in the English language and per the customary Imperial System units of measure and weight (i.e., feet, inches, pounds, degrees in Fahrenheit, etc.). Metric units may be provided in addition to the customary Imperial System units of measure and weight.
- D. All submittals and supporting data, catalogs, schedules, etc., shall be submitted as the instruments of the Contractor, who shall be responsible for their accuracy,

completeness, coordination, and conformance with the Contract Documents. These submittals may be prepared by the Contractor, Subcontractors, or Suppliers; the Contractor shall review and ascertain that submittals meet all of the requirements of the Contract Documents while conforming to structural, space, and access conditions at the point of installation prior to submission to the Engineer. Designation of Work "by others" if shown in submittals shall mean that the Work shall be the responsibility of the Contractor rather than of the Subcontractor or of the Supplier who prepared these submittals. The Contractor shall ensure that there is no conflict with other submittals. The Contractor shall ensure coordination of submittals among the related crafts and Subcontractors.

- E. If the submittals show any deviations from the Contract requirements, the Contractor shall include with the submittal a separate written description of such deviations and the reasons therefore. If any deviations from the Contract requirements are not clearly noted and prominently identified on the submittal, the review of the submittal shall not constitute acceptance of such deviations.
- F. The Contractor shall review all submittals before submitting them to the Engineer and shall certify on each transmittal letter and on each submittal that the submittal has been checked, is in compliance with the Contract Documents except as specifically noted, and that each deviation from the Contract Documents is specifically noted.
- G. Submittals shall include the following:
  - 1. A separate transmittal form shall be used for each specific item, class of Material, Equipment, and items specified in separate, discrete Specification Section or Article, for which a submittal is required. Submittal documents common to more than one (1) piece of Equipment shall be identified with all appropriate Equipment numbers. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or reviewing the group or package as a whole. The Specification Section or Article to which the submittal is related shall be indicated on the transmittal form.
  - 2. A sequential number in chronological order shall be assigned for each submittal and shall be noted on the transmittal form. Submittal numbers shall have the following format: XXX.Y, where XXX is the sequential number (001 to 999) assigned by the Contractor; and Y is the re-submittal number (0 to 9). For each item submitted, the Contractor shall include the applicable Specification number on the submittal and on the transmittal form.
  - 3. A separate written description of deviations from the Contract Documents, if any.
  - 4. The date of submission and the dates of any previous submissions.



5. The District's name and the Project title and number.
6. Contractor identification.
7. The names of the following (as applicable):
  - a. Subcontractor
  - b. Supplier
  - c. Manufacturer
8. Identification of the product with the Specification Section or Article number, page, and paragraph(s).
9. Field dimensions clearly identified as such.
10. Relation to adjacent or critical features of the Work or Material.
11. Applicable standards (e.g., ASTM).
12. Identification of revisions on resubmittals.

**7.05. Submittals to be Furnished by the Contractor****A. Shop Drawings**

1. Shop Drawings include, but are not necessarily limited to, custom prepared data (e.g., fabrication on erection/installation [working] Drawings, scheduled information, setting diagrams, actual shop work manufacturing instructions, custom templates, special wiring diagrams, coordination Drawings, individual system or Equipment inspection and test reports), including performance curves and certifications, as applicable to the Work.
2. Submittal of shop Drawings by simply annotating copies of the Contract Drawings is subject to rejection.

**B. Product Data**

1. Product data as specified in the individual Section or Article, includes, but is not necessarily limited to, standard, prepared data for manufactured products (sometimes referred to as catalog data or "cuts"), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliance and applicability, roughing in diagrams and templates, product photographs, standard wiring diagrams, printed performance curves and operational range diagrams, production or quality control inspection and test reports and certifications, mill reports, product

operating and maintenance instructions, recommended spare parts listing, and printed product warranties, as applicable to the Work.

C. Samples

1. Samples specified in individual Sections or Articles, include, but are not necessarily limited to, physical examples of the Work, such as sections of manufactured or fabricated work, small cuts or containers of Material, complete units of repetitively used products, color/texture/pattern swatches and range sets, specimens of coordination of visual effects, graphic symbols and units of work to be used by the Engineer or by others for independent inspection and testing, as applicable to the Work.

D. Concrete Reinforcement Submittals

1. Submittals for concrete reinforcement shall not simply be annotated copies of the Contract Drawings. New scale Drawings shall be prepared showing plans, all vertical structure elevations, sections, and details as required to clearly delineate the reinforcing to be furnished and installed. Submittals shall show and tabulate reinforcement dimensions, sizes, grades, shapes, splices, laps, splice locations, dowel lengths, and all similar information needed for construction, Material takeoffs, and Engineer's review to determine compliance with the structural design. Submittals shall show reinforcement dimensioning and placement that reflect the Contractor's intended and approved concrete placement sequence.

E. Electrical and Instrumentation Equipment Submittals

1. Submittals as described herein shall be provided for all electrical and instrumentation Equipment and systems furnished as part of products and systems specified in these Specifications. These submittals shall include, but are not necessarily limited to, the following:
  - a. An Equipment list tabulating all components furnished, followed by the manufacturer's name, manufacturer's model number, and a cross-reference to its location on the submittals.
  - b. A complete conduit riser diagram and conduit schedule shall be prepared and submitted for the interconnection of all electrically powered Equipment. The riser diagram and conduit schedule shall detail conduit identification numbers as shown on the Drawings, as well as size, wires, and location. Where the riser diagram requires either more wires or larger conduits than detailed in the Drawings, the Contractor shall coordinate any required changes with the electrical Subcontractor, if any, before installation begins.

- c. Interior and exterior panel elevation Drawings for all panels, consoles, and Equipment enclosures. The elevations shall be drawn to scale and shall detail all Equipment in or on the panel. Nameplates, conduit access locations, mounting provisions, panel construction details, manufacturer's model number, and panel color (or color samples) shall be included.
  - d. Drawings and descriptive data and brochures of each item of Equipment. Electrical characteristics and requirements, enclosure types, manufacturer, and model number shall be included. Sheets or Drawings showing more than the particular item under consideration shall have crossed out all but the description of the item for which the review is requested.
  - e. Schematics and connection diagrams. A manufacturer's standard connection diagram or schematic showing more than one (1) scheme of connection shall not be accepted unless it is clearly marked to show the intended, work specific connections; terminal numbers shall be included. A written operation theory shall be included for all complex control schemes.
2. For each instrument furnished with mechanical systems, submittals shall include an Instrumentation, Systems, and Automation Society (ISA) S20 Data Sheet and technical bulletins or brochures. The summary data sheets and the technical bulletins shall include, but shall not necessarily be limited to, the following:
- a. tag numbers per the Process and Instrumentation Drawings;
  - b. the manufacturer's model or other ordering designation;
  - c. product (item) names used on the Drawings;
  - d. physical location where installed;
  - e. input output characteristics;
  - f. range, size, and graduations as required;
  - g. physical size with dimensions and mounting details;
  - h. quantity and quality requirements for electric power, air, and/or water supply;
  - i. Materials in contact with or otherwise exposed to the process;
  - j. certified calibration and/or calibration curves where applicable; and

- k. Detailed Instrumentation, Systems, and Automation Society (ISA) loop wiring diagrams showing requirements for each instrument that is furnished under this Section. The diagram shall identify all device terminal points, as well as any intermediate terminal blocks. Power supplies, loop grounds, wire/cable number, etc., shall be detailed. Such loop wiring diagrams shall be prepared per ANSI/ISA S5.4. Optional items 1, 3, 4, 6, and 7 from paragraph 5.3 of S5.4 are also required. Note that the District loop numbering protocol used in these documents and required for submittals does not comply with ISA standards.
- 3. Submittal of motor data for acceptance shall include complete nameplate data in accordance with NEMA Standards and, in addition, the following information for motors typical of the units furnished:
  - a. Ambient temperature setting.
  - b. Service factor.
  - c. Efficiency at  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and full load.
  - d. Power factor at  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and full load.
  - e. Motor outline, dimensions, and weight.
  - f. Descriptive bulletins, including full description of insulation system.
  - g. Bearing design data.
  - h. Special features (i.e., space heaters, temperature detectors, etc.).

**7.06. Submittal Review Procedures**

- A. Review of submittals has as its primary objective the completion of the Work in full conformance with the Contract Documents, unmarred by field corrections and within the construction time provided. In addition to this primary objective, submittal review as a secondary objective shall assist the Contractor in its procurement of Equipment that shall meet all requirements of the Contract Documents; shall fit the structures detailed on the Drawings; shall be completed with respect to piping, electrical, and control connections; shall have the proper functional characteristics; and shall become an integral part of a complete operating facility.
- B. For submittals that require the Engineer's review, one (1) copy shall be returned to the Contractor within 20 Days after receipt. The Contractor shall make any necessary corrections and revisions to the returned submittals and shall resubmit the submittals within 20 Days after receipt. The Contractor is responsible for furnishing submittals in sufficient time for approval action, including re-submittal without delaying construction.

- C. The Contractor shall be solely responsible for agreement and conformity of submittals with the Contract Drawings and with the Specifications. The review of submittals shall be for general conformance with the design concept and with the Contract Documents. It is expressly understood that the Engineer's review of the Contractor's submittals shall not relieve the Contractor of any responsibility for:
1. accuracy of dimensions and details;
  2. coordinating the Work with all other associated Work and trades;
  3. selecting fabrication processes;
  4. techniques of assembly;
  5. departing from details furnished by the Engineer;
  6. its obligation to meet safety requirements;
  7. its obligation to meet all other requirements of laws;
  8. compliance with the Contract requirements; and
  9. errors, including details, dimensions, and Material.
- D. Favorable review of all submittals (returned "No Exceptions Noted" "In Receipt of" or "Make Corrections as Noted") shall apply in general design only and shall in no way relieve the Contractor of responsibility for errors or omissions contained therein. Favorable review shall not relieve the Contractor of its obligations to meet safety requirements and all other requirements of laws nor shall it constitute a Change Order authorization. Favorable review shall not constitute acceptance by the District of any responsibility for the accuracy, coordination, and completeness of the submittals or for the items of Equipment represented on the submittals, nor shall it constitute a Change Order authorization.
- E. If the Contractor submits an incomplete or disorganized submittal, the submittal shall be considered "Rejected" and shall be returned to the Contractor without review. The Engineer may, at its sole discretion, elect to provide a list of, or mark the submittal indicating some or all of, the areas that are incomplete. A complete submittal shall contain sufficient data to demonstrate that items comply with the Contract Documents; shall meet the minimum requirements for submissions cited in the Technical Specifications; and shall include any necessary revisions required for Equipment other than the first named manufacturer. The Engineer's determination of whether a submittal is complete shall be final. The District reserves the right to return a submittal that requires coordination with another or other submittals not yet received by the District.
- F. After review by the Engineer of each of the Contractor's submissions, the submittal shall be returned to the Contractor with actions defined as follows:

1. No Exceptions Noted: The favorable review of a submittal is subject to its compatibility with future submissions and with additional partial submissions for portions of the Work not covered in this submission. It does not constitute approval or deletion of specified or required items not shown in the partial submission. The Contractor may proceed with the Work shown in the submittal.
  2. Make Corrections As Noted: Same as 1 except that minor corrections as noted shall be made by the Contractor. The Contractor may proceed with the Work, providing corrections have been made; resubmission is not required.
  3. Revise and Resubmit: Rejected because of inconsistencies or errors that shall be resolved or corrected by the Contractor prior to subsequent resubmission. The Contractor may not proceed with the Work shown in the submittal.
  4. Rejected: Submitted Material does not conform to Drawings and Specifications in major respects (i.e., wrong size, model, capacity, or Material). The Contractor may not proceed with the Work shown in the submittal.
  5. In Receipt Of: Receipt of submittal is acknowledged by the Engineer.
- G. Resubmittals shall be processed in the same manner as first submittals. On resubmittals, the Contractor shall direct specific attention, in writing on the letter of transmittal and on resubmitted shop Drawings by use of revision triangles or other similar methods, to revisions from previous submissions. Any such revisions that are not clearly identified shall be made at the risk of the Contractor. If any such revisions are installed, all portions thereof that do not fully conform to the Contract Documents shall be corrected by the Contractor at its expense and as required by the Engineer.
- H. The favorable review of submittals (returned "No Exceptions Noted" or "Make Corrections as Noted") shall be obtained from the Engineer prior to the fabrication, delivery, and construction of items requiring submittals.
- I. All resubmittals shall be accompanied by a memorandum or letter from the Contractor that responds to each written review comment provided by the Engineer in the previous submittal. Each response shall describe the corrective action taken or reason for the Contractor's actions.
- J. The Contractor shall make a complete and acceptable submittal to the Engineer at least by the second submission. If a returned submittal is required to be resubmitted more than once due to the Contractor's failure to comply with submittal requirements, the Contractor may be charged all costs associated with rereview of the submittal. The charges may be deducted from a progress payment due, or that will become due, to the Contractor and shall be based on

actual review hours recorded by the Engineer, District staff, and by the Engineer's consultants, multiplied by their actual, fully burdened labor rates.

**7.07. Substitutions**

- A. Substitutions are considered changes to the Contract. If Materials, Equipment, item, means, method, technique, sequence, or procedure of construction is required by the Contract Documents, the Contractor may furnish or utilize a substitute item, means, method, sequence, technique, or procedure of construction acceptable to the Engineer, unless identified as a sole/single-source item. Substitutions shall be formally submitted as a Request for Substitution. The Contractor must submit sufficient information to allow the Engineer to determine whether the substitution proposed is equivalent to that indicated or as required by the Contract Documents.
- B. The Engineer shall respond in writing to the Contractor within ten (10) Days indicating the time necessary to evaluate each proposed substitution.
- C. The Engineer shall be the sole judge in this matter. In the event the Engineer rejects the proposed items, the Contractor shall submit the Specified Items.
- D. No substitution shall be ordered, installed, or utilized without the Engineer's prior written acceptance, which shall be evidenced by either a favorably reviewed Request for Substitution, Change Order, or by a DCO. The District may require the Contractor to furnish, at the Contractor's expense, a special performance guarantee with respect to any approved substitution.
- E. The Engineer shall record time required by the Engineer, District staff, and by the Engineer's consultants to evaluate substitutions proposed by the Contractor and to make changes in the Contract Documents occasioned thereby. Regardless of whether or not the Engineer accepts a proposed substitution, the Contractor shall reimburse the District for the charges of the Engineer and for the Engineer's consultants for evaluating each proposed substitution.
- F. Cost or time impacts to other items of Work that are caused by any Contractor-initiated Request for Substitution, whether anticipated or unforeseen, shall be the responsibility of the Contractor.
- G. Request for Substitution: Submission of items that are proposed as equivalent to any other item, means, method, sequence, technique, or procedure of construction shall be evaluated in accordance with the provisions outlined below. Burden of proof as to the submitted items being equivalent to the items required by the Contract Documents is the responsibility of the Contractor.
  - 1. All provisions and evaluation criteria under Article 7.08. "Or Equal" Items, paragraph E in this Article shall apply to the proposed substitutions.
  - 2. No submission of proposed substitutions shall be accepted or considered by the Engineer prior to Contract award.

3. Other additional provisions and/or criteria as deemed necessary by the Engineer.
4. Substitution(s) of Specified Item(s) item, means, method, sequence, technique, or procedure of construction proposed by the Contractor may require modifications in the Project design, Project schedule, and/or in the construction sequencing. The Contractor shall identify all necessary Project modifications required for the substitution(s). Necessary Project modifications may include, but may not be limited to, electrical, instrumentation, structural, mechanical, architectural, testing, engineering costs, and other related modifications.
5. The Contractor shall be responsible for all costs associated with the substitution(s), including submittal reviews and any Project redesign and modification. Contractor refusal to accept any of these costs shall be just cause for disapproval of the substitution(s).
6. If the proposed items are accepted, 50 percent of all savings shall be credited to the District. Total cost savings shall be less any design costs required for substitution(s) implementation.

**7.08. "Or Equal" Items**

- A. Specified Item: Materials, Equipment, product, thing, or service referenced in the Contract Documents that has been identified by one (1) or more specific brand, manufacturer, Supplier, company, catalog number, or trade name. Whenever such designations shall be deemed to be used for the purpose of facilitating the description of the Specified Item and shall be deemed to be followed by the words "Or Approved Equal," whether explicitly stated or not, unless specifically noted to the contrary, in these instances, the Contractor may presume the specific brands are the only product known to the District that meet the requirements of the Contract Documents; the Contractor may propose the provision of Materials or Equipment that are equal to the Specified Item.
- B. Equal Item: Item as referenced in these Contract Documents are those that, to the Engineer's knowledge, meet the requirements of the Contract Documents and are considered equal to the Specified Items.
- C. The Contractor shall submit sufficient data, Drawings, samples, literature, calculations, and all other information as requested by the District to demonstrate to the Engineer that the proposed items are equal to the Specified Items.
- D. Failure of the Contractor to submit the proposed Equal Item for review in the manner and time described in this Article shall be sufficient cause for rejection by the Engineer of the proposed Equal Item.
- E. The Engineer's evaluation of the submitted items proposed as being equivalent to the Specified Items is based on, but is not limited to, the following:
  1. Performance.



2. Functionality and efficiency.
  3. Durability.
  4. Life cycle costs.
  5. Ease and economy of maintenance and operation.
  6. Construction and physical characteristics as compared to the Specified Items or as delineated in the Contract Documents.
  7. Dimensional compatibility with the Material it combined to produce a unified design system.
  8. Compatibility with products in use.
  9. All aspects of finished appearance, including form, texture, and color, that may affect other design elements.
  10. Impacts to Project design, construction schedule, or construction sequencing.
- F. The Engineer shall be the sole judge in this matter. In the event the Engineer rejects the proposed items, the Contractor shall submit the Specified Items.
- G. The Contractor shall submit to the Engineer, in accordance with Public Contract Code Section 3400, after Contract award, no later than 35 Days after the date of NTP, a proposal for replacing a specified item with an equal item. At the sole discretion of the Engineer, the District may give written consent to the submission of the proposed Equivalent Item after the expiration of a 35-day time limit.

**7.09. Sole/Single Source**

- A. No substitution of designated Sole/Single Source items listed in the Contract Documents shall be allowed.
- B. Wherever the District has made a finding and specified in the Contract Documents that a Sole//Single Source is required for one (1) or more of the listed reasons stated in the Public Contract Code Section 3400(c), the Material or Equipment specification shall list only one (1) manufacturer, catalog number, or trade name, followed by the designation "No Equal," "No Others Acceptable," "No Alternatives Allowed," "No Other Manufacturers Accepted," and/or similar language.

## **SECTION 8. SAFETY AND SECURITY MANAGEMENT**

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### **8.01. Public Safety**

- A. The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during the performance of the Work, except from the District's sole negligence or intentional misconduct. The Contractor's compliance with this requirement is not limited to normal working hours.
- B. At all times, the Contractor shall provide for public safety and convenience. The Contractor's operations shall be conducted so as to offer the least possible obstruction and inconvenience to the public along with the greatest safety to the public. At no time shall the Contractor have more Work underway than can be prosecuted with proper regard to these considerations to the public.
- C. At all times, the Contractor shall provide sufficient measures, such as, but not limited to, fences, barriers, barricades, railings, lights, signs, and any other warning devices and shall provide flagging and guards as are necessary to give adequate warning of any dangerous condition to the public and to reasonably and prudently provide for the greatest public safety and convenience. The Contractor shall comply with all reasonable requirements of the Engineer or public agency having jurisdiction in interpreting this subparagraph.

### **8.02. Accident Prevention**

- A. The Contractor is hereby informed that Work on this Project could be hazardous. The Contractor shall instruct all personnel working in potentially hazardous work areas of the potential dangers and shall provide safety Equipment and instruction as is necessary to prevent injury to personnel and damage to property. Special care shall be exercised relative to Work around high-voltage wires, high-pressure gas mains, high-pressure water pipelines, and other utilities. Temporary supports, as required by the utility company, shall be provided by the Contractor to protect utility facilities.
- B. The Contractor shall strictly comply with all applicable City, County, and State Rules, Ordinances, Regulations, and Codes, including, but not limited to, CAL OSHA Labor Code Section 6300 et seq. and California Code of Regulations Title 8, Chapter 4. Nothing in these Specifications shall be construed to permit Work not conforming to governing Codes. When Contract Documents differ from governing Codes, the Contractor shall furnish and install the higher standards called for without additional charge. The Contractor shall also take, or cause to be taken, additional measures as may be necessary for the prevention of accidents.
- C. The Contractor shall maintain an accurate record of, and shall report to the Engineer in writing, exposure data and all accidents resulting in death, traumatic injury, occupational disease, or damage to property, Material, supplies, or Equipment incident to Work performed under the Contract.

- D. If the Engineer notifies the Contractor of any noncompliance with the foregoing provisions, the Contractor shall, after receipt of this notice, immediately take corrective action. If the Contractor fails or refuses to comply immediately, the matter may be referred to the proper authority. No part of the time lost due to any stop order issued by a proper authority shall be made the subject of a Claim for extension of time or for extra costs or damages by the Contractor.
- E. Compliance by Subcontractors with the provisions of this Article shall be the responsibility of the Contractor.

**8.03. Explosives and Stream Pollution**

- A. When the use of explosives is necessary for the prosecution of the Work, the Contractor shall not endanger life or property.
- B. The Contractor must obtain and comply with permit(s) from all regulatory agencies for the storage and use of explosives.
- C. The Contractor must obtain a permit from the California Department of Fish and Wildlife, if required, in advance of the use of underwater explosives. The Contractor shall comply with all applicable requirements of the Fish and Game Code relating to stream pollution, particularly Section 5650.

**8.04. Fires**

- A. The Contractor must obtain and comply with the permit(s) from all regulatory agencies, including from the Bay Area Air Quality Management District (BAAQMD) if required, for fire-related activities.

**8.05. Excavation Safety Plans**

- A. In accordance with Labor Code Section 6705, Miscellaneous safety Provisions, excavations five (5) feet or more in depth shall not begin until the Contractor has submitted, and the Engineer has returned indicating "In Receipt Of," the Contractor's detailed plan for worker protection from the hazards of caving ground during these excavations. The plan may be reviewed by the Engineer for completeness in accordance with Federal, State, and Local regulations. The Engineer shall not be responsible for reviewing the accuracy of assumptions, data and information used, and procedures contained in the plan, or for the adequacy thereof. The plan shall show the details of the design of shoring, bracing, sloping, or other provisions to be made for worker protection during the excavations. The plan shall not allow the use of shoring, sloping, or a protective system less effective than that required by the Construction safety Orders. If the plan varies from the shoring system standards established by the Construction safety Orders, the plan (including calculations) shall be prepared, signed, and stamped by a registered Civil or Structural Engineer and by a registered Geotechnical Engineer in the State of California.

- B. These plans shall be accompanied by a copy of a Permit to Excavate that has been issued by the Division of Occupational safety and Health as required by Labor Code Section 6500 et seq.
- C. This Article shall be applicable regardless of the Contract Price(s).
- D. The Contractor's Engineer shall review the adequacy of the Contractor's work methods, Equipment, bracing, or scaffolding, or safety measures, in, on, or near the construction site.

**8.06. Tunnel Construction Safety**

- A. The Contractor shall comply with all applicable requirements of Labor Code Section 7950 et seq. regarding tunnel safety.
- B. The Contractor shall notify the California Division of Occupational Safety and Health and the Engineer before any initial construction may be started at any tunnels.
- C. The Contractor shall schedule a pre-job safety conference with representatives of the Division, District, employer, and employees before Work begins as required by Labor Code Section 7955. This conference shall include the employer's review of the construction plan and any special Equipment, practices, and potential safety and health problems. The Engineer shall be notified of the time and place of the conference.
- D. The District shall obtain the tunnel classification prepared by the Division of Occupational Safety and Health prior to the request for bids, whenever possible, and make it available to the Contractor. A notice of the classification and any special orders, rules, or regulations to be used in construction, remodeling, demolition, or operation of the tunnel or underground mine shall be prominently posted at the site by the Contractor.

**8.07. Confined Space Program**

- A. The Contractor working in or supporting work in a confined space shall have a Confined Space Program.
- B. The Contractor shall submit a copy of its confined space program document to the Engineer. The program document shall be in compliance with all requirements of California Code of Regulations Title 8, Sections 1950 – 1962, and other applicable confined space requirements. Entry into a confined space shall not occur until the Contractor has submitted, and the Engineer has returned, indicating "In Receipt of," the Contractor's Confined Space Program document.
- C. The Contractor shall ensure that all of its employees and Subcontractors working in or supporting Work in a confined space have received all training mandated by

Cal/OSHA and meet any other Cal/OSHA requirements related to the Work. All entries into confined spaces shall be coordinated with the Engineer.

- D. The Contractor shall provide confined-space rescue services for all Work performed in a permit-required confined space and for all entrants to a permit-required confined space regardless of the entrant's employer.
- E. All employees of the Contractor or Subcontractor performing rescue services shall have received previous training, as applicable, in (i) atmospheric monitoring and ventilation; (ii) communication; (iii) emergency, self-rescue, and non-entry rescue operations; (iv) permit systems; (v) signs, symptoms, and consequences of exposure to contaminants; (vi) first aid and CPR; (vii) lockout/tagout; (viii) fall protection; (ix) electrical safety; and (x) respiratory protection.
- F. The required training as described in Paragraph E above, shall be per established industry standards (i.e., the latest version of ANSI Z117.1, Safety Requirements for Confined Spaces, American National Standards Institute); and per Cal/OSHA regulations (i.e., California Code of Regulations, Title 8, Sections 1960[b] and 5157[k].) All rescue personnel shall also have practiced making permit space rescues at least once every 12 months by means of simulated rescue operations in which they remove dummies, mannequins, or actual persons from actual permit spaces or from representative permit spaces. Representative permit spaces shall, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed. This training shall have taken place no more than 12 months before the Work to be performed on this Project begins.
- G. Prior to the start of Work, the Contractor or any Subcontractor performing Rescue Services, shall submit to the District for review, a Rescue Training Certification (District Form FC 1767) included at the end of this Section, if/when it becomes necessary for District staff to enter a permit required confined space.
- H. Prior to entry, the Contractor shall post the most current copy of its Rescue Training Certification form (without its attachments) at the worksite where rescue services are to be provided.
- I. The Contractor shall submit an updated Rescue Training Certification form to the Engineer prior to the performance of each rescue service event. In addition, the Contractor shall submit an updated form to include any personnel not previously identified.

#### **8.08. Temporary Facilities**

- A. Use construction hoists, elevators, scaffolds, stages, shoring, and similar temporary facilities of ample size and capacity to adequately support and move loads to which they will be subjected. Provide railings, kick plates, enclosures, safety devices, and controls required by law or regulation or for adequate protection of life and property.

- B. Staging and falsework: Temporary support (e.g., formwork, falsework, or shoring) shall be designed and constructed in accordance with Construction Safety Orders, California Code of Regulations, Title 8, Sections 1541.1 and 1717. The falsework plan, shoring plan, and any required calculations shall be submitted, and the Engineer has returned indicating "In Receipt of," prior to commencement of any associated work on site.
- C. Warning devices and barricades: Identify and guard hazardous areas and conditions by visual warning devices, and, where necessary, by physical barriers per Cal/OSHA requirements; by the latest version of the California Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD); and by State agency permit conditions.
- D. Barricades: Place barriers at ends of excavations and along excavations to warn pedestrian and vehicle traffic of excavations. Provide barriers with flashing lights after dark. Keep barriers in place until excavations are entirely backfilled and fully compacted. Barricade excavations to prevent persons from entering excavation areas in streets, roadways, parking lots, or other public or private areas associated with the Project.
- E. Temporary enclosures: When sandblasting, spray painting, spraying of insulation, fireproofing, or other activities inconveniencing or dangerous to property or to the health of employees, District staff, or the public are in progress, the area of activity shall be enclosed adequately to contain the dust, over spray, or other hazard. In the event that there are no permanent enclosures of the area or that enclosures are incomplete or inadequate, the Contractor shall provide suitable, temporary enclosures. The Contractor shall submit to the Engineer a temporary enclosure plan for protection of open bodies of water from contamination. Temporary enclosures shall not hinder or adversely affect treatment plant operations.
- F. Above-grade protection: On multilevel structures, the Contractor shall provide safety protection that, as a minimum, shall meet the requirements of California Code of Regulations, Title 8 Industrial Relations.
- G. Fences: Enclose Work site with fencing adequate to protect the Work as necessary against acts of theft, violence, and vandalism. When entire site or part thereof is to be permanently fenced, permanent fencing may be built to serve as both permanent and temporary protection of the Work site, provided that any damaged or defaced fencing is replaced prior to final acceptance.

**8.09. Injury and Illness Prevention Program**

- A. Work shall not commence until the Contractor has submitted, and the Engineer has returned indicating "In Receipt of," the Contractor's Injury and Illness Prevention Program (IIPP). The IIPP shall comply with Cal/OSHA requirements California Code of Regulations, Title 8, Section 1509 (Construction), Section 3203 (General Industry), and other regulations as applicable. A copy of the

program shall be available at all times at the job site. The Contractor shall designate a Safety Officer who will monitor and enforce the IIPP.

**8.10. Safety and Health Program for Hazardous Waste Operations**

- A. The Contractor shall comply with California Code of Regulations, Title 8, Section 5192 and shall develop and implement a written safety and health program and a site-specific safety and health plan for employees involved in Hazardous Waste operations. The program shall be designed to identify, evaluate, and control safety and health hazards and provide for emergency response for Hazardous Waste operations. In compliance with Title 8, Section 5192, the written safety and health program shall incorporate:
  - 1. an organizational structure;
  - 2. a comprehensive work plan;
  - 3. a Site-Specific Safety and Health Plan;
  - 4. a safety and health training program;
  - 5. a medical surveillance program;
  - 6. the Contractor's standard operating procedures for safety and health; and
  - 7. any necessary interface between general program and site specific activities.

**8.11. Site Safety and Health Supervisor**

- A. The Contractor shall provide a site safety and health supervisor who has the responsibility and authority to develop and implement the site-specific safety and health plan and to verify compliance in accordance with California Code of Regulations.
- B. The site safety and health supervisor shall be a qualified and experienced safety and health professional whose sole duty is safety, health, environmental control, and monitoring and who shall be on-site during normal working periods and available 24 hours a day, seven (7) Days a week by telephone or by other approved means. Safety representatives from Subcontractors shall not be substituted for the Contractor's safety representative.
- C. The site safety and health supervisor shall meet, at a minimum, the following qualifications: five (5) years of construction project safety management experience on similar projects with OSHA 30-hour certified construction training or certified safety professionals (CSP) with experience in construction-related projects. The safety officer or other competent person shall maintain current training certificates in first aid and in CPR.

**8.12. Site-Specific Safety and Health Plan**

- A. The Contractor shall develop, implement, and verify compliance of a site-specific safety and health plan for Work on this Project.
- B. The safety and health plan shall conform to the requirements of all local, state, and federal ordinances, rules, regulations, and guidelines concerning occupational health and safety issues. It shall also include protocol to be utilized in the event unexpected materials or substances are encountered.
- C. The safety and health plan shall consist of procedures for the protection of the Contractor's personnel, including Subcontractors, District personnel, consultants, inspectors, and Supplier personnel working with Hazardous Material and the general public from Site-specific hazards.
- D. The safety and health plan shall be prepared and signed by a certified industrial hygienist (CIH). The safety and health plan shall identify the site safety and health supervisor who is responsible for the implementation of the plan.
- E. Should the types of activities and associated hazards change during the course of work, the Contractor's CIH shall amend the appropriate sections of the safety and health plan to reflect the changed site conditions. The revisions shall address the specific potential hazards to workers and to any others who will be involved in the construction that could result from exposure to the new hazard(s).
- F. The Contractor shall keep a copy of the safety and health plan at the job site at all times and shall provide a copy to all personnel working on site. All Contractor personnel performing work on-site shall be required to read the safety and health plan and shall be required to sign an acknowledgment that he/she has obtained and read a copy of the safety and health plan. No worker shall be allowed to perform Work on the site until a copy of his/her signed acknowledgment has been submitted to the Engineer by the Contractor. At a minimum, the safety and health plan shall consist of the following items:
  - 1. Project Organization: To include project manager, project site safety officer, superintendent, forepersons, Subcontractors, any team leaders, and other workers and shall address their roles and responsibilities.
  - 2. Work Plan: Address anticipated Project activities and objectives of the site operations; identify performance tasks for the Project, methods, and activities for accomplishing these tasks, task hazard analysis for each task activity listed in the safety and health plan, personnel requirements, personnel training requirements, and medical monitoring requirements for site personnel.
  - 3. Site Safety Meetings: Include the frequency of the meetings, who will conduct the meetings, time of day meetings will be held, general topics that will be covered at the meetings, and documentation protocol.



4. Employee Training Assignments: Discuss the training elements and the employees who received the training.
5. Review of the Site History for Overall Hazard Characteristics: Discuss physical and health hazards, site characterization, and known and potential exposures to Hazardous Material.
6. Site Control Program: At a minimum, specify the site work zones, site personnel training requirements for each class/type of worker, site protective clothing requirements, safe working practices, and site communication.
7. Personnel Medical Monitoring Requirements: Discuss requirements for each class/type of worker to be on-site and special condition hazards.
8. Personnel Protective Equipment Program: At a minimum, specify selection, personnel training requirements, Equipment storage requirements, Equipment maintenance and repair requirements, Equipment decontamination requirements, and Equipment limitations.
9. Engineering Controls: Specify additional engineering controls to be used for workplace safety, if any.
10. Monitoring: As applicable, at a minimum, specify monitoring methodology, frequency of monitoring, personnel training requirements to monitor, Equipment to be used, Equipment calibration methodology, and documentation protocol.
11. Material Handling: As applicable, specify machinery and Equipment to be used, tools to be used, containers to be used, and personnel training requirements for operators.
12. Decontamination: As applicable, specify procedures for decontamination area construction, personnel decontamination, Equipment decontamination, reinstate control, protective clothing debris control, and decontamination station personnel requirements.
13. Emergency Response Program: At a minimum, specify directions to the nearest medical facility, decontamination procedures for injured workers, and emergency Equipment available on-site.
14. Spill Contamination Contingency Program: Shall include provisions for gases, liquids, and solids.
15. Sanitation Facilities: Identify availability for workers and provisions for different sexes.

16. Illumination: If used during the Project, specify the condition requirements for use, type of illumination to be provided, and illumination locations on site.
  17. Confined Space Entry: Discuss personnel protective Equipment, ventilation method and Equipment, illumination method and Equipment, atmosphere testing and Equipment, safety protocol, and documentation protocol.
  18. Site Excavation: Discuss types of Equipment to be used, personnel training requirements, safety practices to be utilized, open excavation construction, and personnel entry safety.
  19. Safety Inspections: Identify scope of inspections, frequency and time of inspections, personnel qualification of inspector, and communications protocol.
- G. The Contractor shall comply with the safety and health plan. Noncompliance with the safety and health plan shall be grounds for temporary suspension of all Work. Suspension of Work for noncompliance shall not be grounds for additional time or compensation.
- H. The safety and health plan may be revised and/or amended by the Contractor and the Contractor's CIH as necessary during Work progress and as specified in these Specifications. Revisions and/or amendments to the safety and health plan shall be considered incidental to this item of Work; no additional payment shall be made.

**8.13. Safety and Health Plan Implementation**

- A. Providing for worker safety and personal protection is the Contractor's responsibility and shall be in accordance with the Contractor's safety and health plan. The Contractor is responsible for providing any and all training, monitoring, personal protective Equipment, protective clothing, devices, Equipment, and/or facilities necessary for ensuring worker safety as may be recommended and/or as specified in the Contractor's safety and health plan.
- B. The Contractor is responsible for ensuring that its personnel understand and comply with all site health and safety requirements specified in the safety and health plan.

**8.14. Submittals**

- A. This Article summarizes required safety-related submittals. This Article is not intended to be all inclusive. In addition, some submittal requirements specified below may not apply depending on the specific Work under this Contract. Contractor is solely responsible for identifying and submitting to the District and/or to appropriate authorities having jurisdiction all Submittals required by

applicable laws, rules, and regulations. The Contractor shall submit at a minimum the following items:

1. Injury Illness Prevention Program (IIPP): Shall be submitted and favorably reviewed by the Engineer prior to commencement of any Work on site. The District may review or comment on the IIPP. The District's review or comment on the IIPP does not in any way relieve the Contractor of (i) any responsibility or liability for the IIPP, and (ii) being solely, fully, and completely responsible for the safety of all persons and property at the job site.
2. Site-Specific Safety and Health Plan: Shall be submitted and favorably reviewed by the Engineer prior to commencement of any Work on site (if applicable). The District may review or comment on the safety and health plan. The District's review or comment on the plan does not in any way relieve the Contractor of (i) any responsibility or liability for the plan, and (ii) being solely, fully, and completely responsible for the safety of all persons and property at the job site.
3. Names and qualifications (résumés including education, training, experience, and certifications) for the designated site safety and health supervisor and other competent and qualified personnel to be used on the Project in support of job site safety requirements.
4. Completed Activity Hazard Analysis (AHA) or Job Hazard Analysis (JHA) submitted for all significant activities and tasks with a high-risk potential, describing the job steps, hazards associated with each job step, and the controls used to remove or minimize the associated hazards. No hazardous Work shall be allowed without an approved AHA or JHA.
5. Incident Investigation Reports: Submitted to the Engineer within 24 hours of the Project incident.
6. Project-Specific Hazardous Substances Communications Plan: Contractor shall prepare and submit plan and receive favorable review by the Engineer prior to commencement of sitework activities.
7. Safety Meeting Attendance Sheet ("Toolbox" meetings): Submitted to the Engineer within seven (7) working Days of the last working Day of the month.
8. Air Monitoring Results/Reports: Submitted to the Engineer on request (if applicable).
9. Monthly Field Project Report (including man-hours, incident/injury, and property damage reports): Submitted to the Engineer on a monthly basis within seven (7) Days of the last working Day of the month.

10. Heavy Equipment Inspection Forms: Submitted to the Engineer on request (if applicable).
11. Documentation for all Individuals Applicable to Regulatory Medical Surveillance Guidelines and HAZWOPER Training per Cal/OSHA Requirements: Submitted to the Engineer for review prior to beginning any Work associated with these requirements (if applicable).
12. Critical Lift Plans: Submitted to the Engineer on request (if applicable).
13. Crane Inspection Certifications: Submitted to the Engineer on request (if applicable).
14. Crane Operators Certification: Submitted to the Engineer on request (if applicable).
15. Applicable employee training and required medical approval documentation in compliance with Cal/OSHA standards.
16. Copies of detailed and documented quarterly crane inspections conducted by qualified individuals (if applicable).
17. Written crane inspections submitted to the Engineer on a daily basis.

**8.15. Security Requirements at Job Site**

- A. The Contractor shall make adequate provision for the protection of the Work area against fire, weather, theft, and vandalism and for the protection of the public against exposure to injury. All costs arising from theft, fire, or vandalism of the construction Material and Equipment shall be borne by the Contractor.
- B. During night hours, weekends, holidays, and during other times when no Work is performed at the site, the Contractor shall provide temporary closures or enlist services of security guards to protect temporary openings.
- C. The Contractor shall not allow its staff to stay at the Project site outside of specified hours of Work.

**8.16. General**

- A. The Contractor shall comply with the security requirements specified herein during the entire construction duration. These requirements are not to be construed to relieve the Contractor of its responsibility for the Work as specified in Article 4.11. Contractor's Responsibility for the Work.
- B. The Contractor's personnel includes the Contractor's own staff, including, but not limited to, all tiers of Subcontractor staff, manufacturer representatives, technicians, delivery drivers, etc.

**8.17. Identification and Badging**

- A. All Contractor personnel who enter the Project site are required to possess and carry a valid photographic identification. A current driver's license, or identification card issued by the California Department of Motor Vehicles or by other States, or a current passport is considered valid photographic identification. This identification shall be presented to District staff and security guards upon request. Contractor personnel without this identification shall be denied access to or shall be asked to leave the site.
- B. The District shall provide Project-specific identification badges for use by Contractor personnel. The District shall issue a photographic identification badge to each person who works at the site for more than five (5) continuous Days and generic (nonphotographic), temporary badges for Contractor personnel who work on an occasional basis (less than five [5] continuous Days.)
- C. The Contractor shall submit to the Engineer for approval a list of all Contractor personnel intended to work at the site for more than five (5) continuous Days. The list shall include the name, employer, and work phone number of each person. Upon approval by the Engineer, the Contractor shall complete a District furnished identification badge application for each eligible employee and make arrangements with the Engineer to have Contractor employee photographs taken at the District for the purpose of obtaining District-furnished photographic identification badges. Approved applications and valid photographic identifications shall be required before issuance of District photographic identification badges.
- D. Planned, occasional site access. The Contractor shall plan in advance all occasional (less than five [5] continuous Days) site accesses. The Contractor shall notify the Engineer of the name and employer of the Contractor's personnel requiring occasional site access at least one (1) Day in advance of each occasional site access. After sign in, the District's security guard will issue a generic, temporary badge to the occasional visitor. The occasional visitor shall return his/her badge to the security guard upon leaving the site.
- E. Emergency or unplanned site access. For emergency or unplanned access, as determined by the Contractor and approved by the Engineer and upon notification by the District's security guard, the Contractor designee shall verify to the District's security guard the identity of the Contractor personnel requiring emergency or unplanned site access. After sign in, the District's security guard will issue a generic, temporary badge to the emergency or unplanned visitor. The emergency or unplanned visitor shall return his/her badge to the security guard upon leaving the site.
- F. The Contractor shall ensure that all Contractor personnel display their District issued photographic identification badge or generic, temporary badge in plain view at all times while on-site. Any Contractor personnel who does not display his/her photographic identification badge or generic, temporary badge while on-site shall be required to leave the site.

- G. Lost or missing photographic identification badges shall be reported immediately to the Engineer; a generic, temporary badge shall be issued by the District's security guard. The District shall deduct \$100 for each lost or missing photographic identification badge from the Contract amount.
- H. Lost or missing generic, temporary badges shall be reported immediately to the Engineer; a generic, temporary badge shall be issued by the District's security guard. The District shall deduct \$100 for each lost generic, temporary badge from the Contract amount.
- I. The Contractor shall maintain a list of Contractor personnel in possession of a photographic identification badge. The Contractor shall record, at a minimum, the following information: employee name, employer, work phone number, badge issuance date, date when employee ceases working at the site, and date when badge was missing, lost, or returned to the District. The Contractor shall submit updated badge lists to the Engineer on or before the fifth Day of each month. The District may deduct from the Contract amount \$200 for each badge list not submitted on time. Approved lists shall be the basis for determination of the deductions for photographic badges not returned within the allowed time limit.
- J. The Contractor shall collect and return to the District photographic identification badges from all Contractor personnel within 30 Days from the date of their employment termination or when their assignment on-site is complete. If the Contractor fails to return the badges within 30 Days of the employee's termination or assignment completion, the District shall deduct \$100 from the Contract amount for each photographic badge not returned on time.
- K. At the completion of the Project, the Contractor shall return all District-issued photographic identification badges to the District. The District shall deduct \$100 from the Contract amount for each photographic badge unreturned or returned after Project Completion.

**8.18. Background Checks**

- A. The District reserves the right to request and receive this information as allowed by law and as required to complete a background check on any Contractor personnel who must enter the site.
- B. The District reserves the right to deny access to the site to any person, as allowed by law.

**8.19. Site Access Control**

- A. The District may maintain a security checkpoint at the gate(s) and facility(ies). The security checkpoint(s) may be staffed by a District security guard during normal working hours, and at other hours, on an as-needed basis. District roving guard(s) may also patrol the property.

- B. Unless otherwise specifically required in these Specifications, the entire site perimeter, including all fences and gates, are to remain intact and functional throughout the construction period. Fences and gates that are accidentally breached by the Contractor shall be restored by the Contractor at no additional cost to the District by the end of the workday at the latest. Perimeter breaches shall be secured by the Contractor until the breaches have been closed to the satisfaction of the Engineer. For work requiring perimeter breaches, the Contractor shall work with the Engineer to arrange appropriate measures to secure the perimeter at the Contractor's cost. The Contractor shall promptly inform the District of any accidental perimeter breaches. No unauthorized entries shall be allowed in these breaches, including deliveries and Contractor personnel.
- C. All vehicles entering the Project site are subject to search by District guards.

**8.20. Mail and Postal Deliveries to the Project Site**

- A. Unless an exception is granted by the Engineer, the Contractor shall not have United States Postal Service, Federal Express, UPS, or similar mail and package deliveries addressed to any District facility. Under no circumstance shall mail/packages be delivered to the reception area of any District facility.

**8.21. Productivity Lost for Noncompliance With Security Measures**

- A. Costs and delays incurred by the Contractor due to security measures (e.g., deliveries or personnel held at the gate without badges or identification, refusal of package deliveries, etc.) shall not be cause for additional Contract Time(s) or for additional compensation for the Contractor.
- B. Failure to comply with these security measures may lead to Delay or to stop of the Work with no additional Contract Time(s) or additional compensation granted to the Contractor.

**8.22. Payment**

- A. Full compensation for doing all Work and furnishing all Material required to comply with site safety and security requirements as specified in these Specifications shall be considered incidental and shall be included in other items of Work; no additional payment shall be made.



**Enter Company Name Here**  
**RESCUE TRAINING CERTIFICATION**  
FC 1767 (01-31-14)

Contractor shall ensure that all its employees working in or supporting work in a confined space have received all training mandated by Cal-OSHA and meet other Cal-OSHA requirements related to such work.

All employees of the Contractor or subcontractor performing rescue services must have received previous training in (1) Atmospheric monitoring and ventilation; (2) Communication; (3) Emergency self-rescue, and non-entry rescue operations; (4) Permit system; (5) Signs; (6) First aid and CPR; (7) Lockout/tagout; (8) Fall protection; (9) Electrical safety, and (10) Respirator protection.

Rescue services training must have been performed consistent with established industry standards (ANSI Z117.1, Safety Requirements for Confined Spaces, American National Standards Institute and Cal/OSHA regulations). All trained employees must have practiced making permit required confined space rescues at least once every twelve months by means of simulated rescue operations in which they remove dummies, mannequins, or actual persons from actual permit spaces or from representative permit spaces. Representative permit spaces must, with respect to opening size, configuration and accessibility, simulate the types of permit spaces from which a rescue could be performed. Such training shall have taken place no more than twelve months before the work to be performed on this Project begins.

With regard to employees of Contractor or any subcontractor performing rescue services, prior to the start of work, Contractor shall submit for review and acceptance by the District all of the following information in the spaces designated below: a certification with the respective employee's name, the name(s) of the trainers, the dates of all rescue practice sessions, and brief descriptions of the rescue practice sessions. Copies of all written materials provided during the training courses or rescue practice sessions shall be attached to this form. Prior to entry, the Contractor shall post copies of such certifications (without their attachments) at the worksite where rescue services are to be provided.

EMPLOYEE'S NAME	DATE OF LAST INCLUSIVE TRAINING (1, 2, 3, 4, 5, 6, 7, 8, 9, 10)	DATE OF LAST PRACTICE RESCUE SESSION (ANNUAL)	TRAINER NAME/COMPANY	DESCRIPTION OF THE RESCUE PRACTICE SESSION (BRIEF)	COPIES OF ALL WRITTEN MATERIAL PROVIDED DURING THE TRAINING COURSES OR RESCUE PRACTICE SESSIONS
1					<input type="checkbox"/> Yes <input type="checkbox"/> No
2					<input type="checkbox"/> Yes <input type="checkbox"/> No
3					<input type="checkbox"/> Yes <input type="checkbox"/> No
4					<input type="checkbox"/> Yes <input type="checkbox"/> No
5					<input type="checkbox"/> Yes <input type="checkbox"/> No
6					<input type="checkbox"/> Yes <input type="checkbox"/> No
7					<input type="checkbox"/> Yes <input type="checkbox"/> No
8					<input type="checkbox"/> Yes <input type="checkbox"/> No
9					<input type="checkbox"/> Yes <input type="checkbox"/> No
10					<input type="checkbox"/> Yes <input type="checkbox"/> No

PREPARED BY \_\_\_\_\_ PHONE NO. \_\_\_\_\_ E-MAIL ADDRESS \_\_\_\_\_

I Certify that the information provided is true and correct.

SIGNATURE \_\_\_\_\_ PRINT NAME \_\_\_\_\_ TITLE \_\_\_\_\_  
DATE PREPARED \_\_\_\_\_ COMPANY ADDRESS \_\_\_\_\_



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## **SECTION 9. QUALITY MANAGEMENT**

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### **9.01. General Quality Requirements**

- A. This Section includes quality control (QC) requirements and procedures for Materials, products, Equipment, and workmanship; inspection procedures and limitations; sampling and testing of Materials; and Contractor's quality assurance/quality control (QA/QC) program.
- B. The Contractor shall provide and use Construction Equipment and plants capable of producing the quality and quantity of Work required. Construction Equipment shall be identified by readily visible numbers. If ordered, the Contractor shall remove unsatisfactory Construction Equipment and discontinue the operation of unsatisfactory plants.

### **9.02. District Quality and Environmental Policy Training**

- A. The following training requirements are minimum requirements. This training is required as part of the District's Quality and Environmental Management System (QEMS) and required for ISO certification. Additional training may be required in accordance with the Special Provisions for environmentally sensitive Projects.
- B. The following applies to all Contractor and Subcontractor Project personnel:
  - 1. The Contractor is hereby informed that all supervisory-level personnel must attend QEMS training before Work begins on the Project site. All other Contractor personnel must attend QEMS training within seven (7) Days of beginning Work on the Project site.
  - 2. QEMS training will be administered by the District and will include one (1) 30-minute training session for all staff. It may be necessary to conduct training at the District's headquarters building. All personnel shall sign a acknowledgement that they have attended the subject training.
  - 3. Upon completion of training, personnel will be provided with a QEMS training sticker to be placed on their hard hats. The District may require training on an annual basis.

### **9.03. Contractor's Quality Control Program**

- A. The Contractor's Quality Control (QC) program is the successful and systematic execution of a realistic plan to certify that required standards of quality design and construction are met and to preclude problems resulting from poor quality or lack of quality. In performing its QC function, the Contractor develops procedures to manage and control its Material, Equipment, personnel, and work so that the completed Work complies with the Contract requirements. The Contractor, in building to the quality standards in the Contract Documents, controls the quality of the Work.

- B. The Contractor shall establish and execute a QC program for services that are procured by the Contractor. The program shall provide the Contractor with adequate measures for verification of and conformance to defined Contract requirements by the Contractor's personnel and lower-tier Subcontractors (including fabricators, Suppliers, and sub-contractors).
- C. When required, as stated in the Special Provisions the Contractor shall submit to the Engineer a Project-specific QC plan. The QC plan shall contain a comprehensive account of the Contractor's QC procedures as applicable to this Work. Detailed requirements for this QC plan are delineated in the following paragraphs. The Engineer's review of the Contractor's QC plan shall not relieve the Contractor from any of its obligations for performing the Work. No Work shall start until the Contractor's QC plan has been favorably reviewed by the Engineer. No payments shall be made to the Contractor until the QC plan is favorably reviewed by the Engineer.
- D. The QC Plan shall demonstrate that it has qualified QC personnel who meet or exceed the requirements of Special Provisions Article 20.04.02. Contractor's Quality Staffing Requirements. The QC plan shall identify the independent testing firms to be used in accordance with Article 9.09. Testing.
- E. The Contractor's QC program shall ensure the achievement of adequate quality throughout all applicable areas of the Contract. The QC plan shall describe the program and include procedures, work instructions, and records. In addition, the Plan shall describe methods relating to areas that require special testing and procedures as noted in the Specifications.
- F. Identification and Control of Items and Material: Procedures to ensure that items or Material that have been accepted at the site are properly used and installed shall be described in the QC plan. The procedures shall provide for proper identification and storage and prevent the use of incorrect or defective Material.
- G. Inspection and Tests: The Contractor shall have written procedures and checklists defining a program for control of inspections performed; these procedures and checklists shall be described in the QC plan. Procedures shall include specific instructions for observing all Work in process and for comparing this Work with the Contract requirements (organized by Specification section), precluding the covering of deficient or rejected Work, halting or rejecting Work, and resolving differences between the Field QC Representative(s) and the production representative(s).
- H. A complete matrix listing all operational, performance, and QC tests and inspections required in the Contract Documents: Each entry in the matrix shall include the Specification Section and paragraph; test/inspection description; procedure used; on/off-site; test frequency and acceptance criteria; and testing firm conducting each test. Below is a sample showing one (1) particular test:

Test and Inspection Plan Table

Spec Section	Test/Inspection Description	Procedure Used	On/Off site	Frequency	Acceptance Criteria	Conducted by	Documentation /Report	Notes
15453.3.04.B	Hydraulic Pressure Test	15453.3.04.B	On	After leak test, 2 hours	30 ft	John Smith	Hydro-test Report	

- I. The QC plan shall identify all contractual hold/inspection points, as well as any Contractor-imposed hold/inspections points.
- J. The QC plan shall include procedures to provide verification and control of all testing provided by the Contractor.
- K. Supplier Quality Control (SQC): The QC plan shall include procedures to ensure that procured products and services conform to the requirements of the Specifications. This plan shall include periodic visits to the place of manufacture by the Contractor to perform QA activities. The District shall be notified of all such SQC visits a minimum of two (2) weeks in advance in case it elects to attend the visit. Requirements of these procedures shall be applied as appropriate to lower-tier Suppliers and/or to Subcontractors.
- L. Deficient and Nonconforming Work and Corrective Action: The QC plan shall include procedures for handling deficiencies and non-conformances. Deficiencies and non-conformances are defined as documentation, Drawings, Material, Equipment, or Work not conforming to the contractually specified requirements or procedures. The procedures shall prevent non-conformances by identification, documentation, evaluation, separation, disposition, and corrective action to prevent recurrence. Conditions having adverse effects on quality shall be promptly identified and reported to the Contractor's senior-level management and to the Engineer. The cause of conditions adverse to quality shall be determined and documented and measures implemented to prevent recurrence. In addition, at a minimum, this procedure shall address:
  1. Personnel responsible for identifying deficient and non-complying items within the Work.
  2. The manner/process and the name of personnel by which deficient and noncompliant items are documented "in the field."
  3. The personnel and process utilized for logging deficient and noncompliant work into a deficiency log at the end of each Day.
  4. Tracking processes and documentation for deficient and noncompliant items.
  5. Personnel responsible for achieving resolution of outstanding deficiencies.
  6. Once resolved, the manner/process by which the resolutions are documented and by whom.

- M. Special Processes and Personnel Qualifications
  - 1. The QC plan shall include detailed procedures for the performance and control of special processes (e.g., welding, soldering, heat treating, cleaning, plating, nondestructive examination, etc.).
  - 2. Personnel performing special process tasks shall have experience, training, and certifications commensurate with the scope, complexity, or nature of the activity. The Contractor shall submit personnel qualifications information to the Engineer before the start of Work on the Project.
- N. The Contractor's QC staffing is subject to the Engineer's continued review. The Engineer, at its sole option and without cause, may direct the Contractor to remove and replace the Field QC Representative.
- O. Audits: The Contractor's QC program shall provide for documented audits on a quarterly basis to verify that QC procedures are being fully implemented by the Contractor as well as by its Subcontractors and Suppliers. Audit records shall be submitted to the Engineer within five (5) business Days after an audit.
- P. The Engineer may perform independent QA audits to verify that actions specified in the Contractor's QC plan have been implemented. No Engineer audit finding or report shall in any way relieve the Contractor from any requirements of this Contract.

#### **9.04. Quality Coordination Meetings**

- A. The Contractor shall provide, at a minimum, five (5) working Days' advance notice and shall participate in the following three (3) QC coordination meetings. Minutes for each meeting shall be prepared by the Contractor's Field QC Manager and submitted to the Engineer. The meetings shall be mentioned in the Contractor's daily inspection report with the minutes attached:
  - 1. Pre-submittal Conference
    - a. Prior to the Contractor's submittal of the QC plan, the Field QC Manager, its Superintendent, and other relevant personnel shall convene a QC coordination conference with the Engineer to review and discuss the QC plan. During the conference, mutual understanding of the QC plan requirements should be developed.
  - 2. Preparatory Meeting
    - a. Thirty (30) Days prior to beginning Work on each Definable Feature of Work (e.g., ceramic tile, fencing and gates, masonry, rough-in electrical, etc.), the Contractor's Field QC Manager, Superintendent, other Contractor QC personnel (as applicable), and the foreman responsible for the Definable Feature of Work

shall meet with the District Engineer. The meeting shall cover the following agenda, with minutes documented by the Contractor's Field QC Manager.

- 1) Review the Contract Plans and Specifications.
- 2) Review reference Codes and Standards.
- 3) Confirm that all required submittals have been approved.
- 4) Review relevant RFIs, field memos, and changes to the design of the Definable Feature of Work.
- 5) Review QC requirements for the Work, including inspection, testing, and acceptance and tolerance requirements.
- 6) Review critical installation procedures and quality compliance.
- 7) Examine Work area to assure that all required predecessor Work has been completed, that all required deficiencies have been corrected and approved, and that all documented, remaining deficiencies shall not impair the construction of the planned Definable Feature of Work.
- 8) Check availability of required resource and Equipment to perform the Work.
- 9) Review Activity Hazards to address safety precautions.
- 10) Determine commencement of the initial meeting.

3. Initial Meeting

- a. One (1) workday before the beginning of construction of a Definable Feature of Work, the Contractor's Field QC Manager, Superintendent, other CQC personnel (as applicable), and the foreman responsible for the Definable Feature of Work shall meet with the Engineer. The meeting shall cover the following agenda, with Minutes documented by the Contractor's Field QC Manager.
  - 1) Review minutes of the preparatory meeting.
  - 2) Verify specified Material and Equipment is on-site.
  - 3) Establish level of workmanship and verify that it meets minimum acceptable workmanship standards.

- 4) Compare with required samples and mockups as appropriate.
- 5) Verify adequacy of QC for the Work, including availability of test Equipment.
- 6) Resolve all differences.
- 7) Indicate exact location of initial phase in the minutes for future reference and comparison with follow-up phases.
- 8) Repeat the initial phase for each new crew to work on-site or any time accepted or specified quality standards are not met.

**9.05. Documented Quality Control Records**

- A. The Contractor shall establish control methods of Contract Documents that describe how Drawings and Specifications are received and distributed to assure the correct issue of the document is being used. The methods shall also describe how as-built data are documented and furnished to the Engineer.
- B. The Contractor shall maintain evidence of activities affecting quality, including operating logs, records of inspections and tests, audit reports, Material analyses, personnel qualification and certification records, procedures, and document review records.
- C. Quality records shall be maintained in a manner that provides for timely retrieval, and traceability. Quality records shall be protected from deterioration, damage, and destruction.
- D. The Contractor shall provide a list of QC records as specified in the Contract Documents that will be furnished to the Engineer at the completion of activities.

**9.06. Inspection and Daily Reports****9.06.01. Inspection**

- A. The Contractor shall utilize qualified individuals to perform and document inspections and tests. At a minimum, "qualified" shall mean having performed similar QC functions on similar-type projects. Records of personnel experience, training, and qualifications shall be maintained and made available for review by the Engineer upon request.
- B. The Engineer shall at all times have access to the Work during its construction and shall be furnished with every reasonable facility for ascertaining that the Material and the quality of performance are in accordance with the requirements and intentions of the Drawings and Specifications. All Work done shall be subject to the Engineer's inspection as well as by external parties.

- C. The day-to-day inspection performed by the various inspectors employed by the District shall not constitute approval or ratification of Work improperly done by the Contractor. The Engineer is the only person authorized to recommend acceptance of Work and Material.
- D. The presence or absence of an inspector during performance of the Work shall not relieve the Contractor of any obligation to fulfill the Contract. It shall be the duty of the Contractor to see that all provisions are complied with in detail, irrespective of the inspection given the Work during its progress by the Engineer or by representatives of the Engineer. The District and the Engineer shall assume no responsibility for any plan or method suggested to the Contractor by the Engineer or by an inspector that is not specified or required. Any such suggestion shall be used at the risk and responsibility of the Contractor.
- E. Inspection does not waive or alter the requirements or provisions of the Contract Documents. Inspection of the Work or receipt of payment shall not relieve the Contractor of its obligation to fulfill all conditions of the Contract; improper Work shall be subject to rejection.
- F. No portion of any Work, installed Material, products, or Equipment shall be covered or concealed in any manner without first being inspected by the Engineer. Whenever the Contractor is ready to backfill, bury, cast in concrete, hide, or otherwise cover any Work under this Contract, the Contractor shall notify the Engineer not less than one (1) Work Day in advance to request inspection before beginning any such Work of covering. Failure of the Contractor to notify the Engineer at least one (1) Work Day in advance of any such inspections shall be reasonable cause for the Engineer to order a sufficient Delay in the Contractor's schedule to allow time for such inspection. If any Work, Material, products, or Equipment is covered prior to inspection or prior to the express approval of the Engineer, that Work, Material, products, or Equipment shall be uncovered at no additional cost to the District. All associated costs, including its impact on other portions of the Work, shall be borne by the Contractor.
- G. The Contractor shall not conceal any part of the Work until record Drawing information has been taken and recorded by the Contractor.
- H. Should it be considered necessary or advisable by the District at any time before acceptance of the entire Work to make an examination of Work already completed by removing or tearing out same, the Contractor shall, on request, promptly furnish all necessary facilities, labor, and Material. If such Work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or of Subcontractors, the Contractor shall defray all of the expenses of this examination and of satisfactory reconstruction. If, however, the Work is found to meet the requirements of the Contract, an equitable adjustment shall be made in the Contract Price(s) to compensate the Contractor for the additional services involved in the examination and reconstruction, and if completion of the Work has been delayed thereby, the Contractor shall, in addition, be granted a suitable extension of time.



- I. Work, Material, products, and Equipment not conforming to the Contract Documents shall be considered defective and shall be corrected or removed and replaced with conforming Work, Material, products, and Equipment at no additional cost to the District.

**9.06.02. Daily Inspection Reports**

- A. The Contractor is required to submit a daily QC inspection report providing factual evidence that required QC activities and/or tests have been performed. These records shall include the Work of Subcontractors and Suppliers and shall be on a form acceptable by the Engineer. Reports shall be made available at the end of each work day or no later than prior to the beginning of the next work day. Such reports shall, at a minimum, include the following:
  - 1. Item(s) inspected.
  - 2. Quality characteristics in compliance.
  - 3. Quality characteristics not in compliance.
  - 4. Corrective/remedial actions taken.
  - 5. Statement of certification.
  - 6. Field QC Representative's signature.
  - 7. Contractor/Subcontractor and its/their area of responsibility.
  - 8. Test and/or control activities performed with results and references to Specification/Drawing requirements.
  - 9. Test reports as attachments.
  - 10. Contractor's completed QC checklists, where applicable.
  - 11. Records of any SQC reports performed off-site as an attachment.
  - 12. Any Noncompliance Notices (NCN) issued.
    - a. An NCN shall be issued to document defective Work.
    - b. Corrective Action Reports (CAR) shall be completed to close out an NCN. An NCN may not be closed until the CAR is accepted by the Engineer.
    - c. A log of the NCN and the corresponding CAR shall be published at the end of each month.
  - 13. A Contractor's verification statement stating that each daily report is a complete, true, and accurate account of that Day's construction activity.

- a. These records in report form shall be prepared daily. The records shall be available in the field within 24 hours after the date covered by the report for review by the Engineer; all reports for that week shall be submitted weekly to the Engineer.
- b. Reports need not be submitted for Days on which no Work is performed. At a minimum, one (1) report shall be prepared and submitted for every seven (7) Days of no Work and on the last Day of a no-Work period. All Days shall be accounted for throughout the life of the Contract. The first report following a Day of no Work shall be for that Day only.
- c. Reports shall be signed and dated by the Contractor Field QC Manager. The report from the Contractor Field QC Manager shall include copies of reports prepared by all subordinate QC personnel.

**9.07. Plant Inspection**

- A. Material and Equipment that become a part of the completed Work shall be subject to inspection at the place of production or manufacture, at the shipping point, or at the site of the Work. Material and Equipment requiring inspection at the place of production or manufacture shall be designated by the Engineer. Where plant inspection is so designated, the Engineer shall be given a 14-day advance notice of the start of manufacture or of production. For international locations and sites outside of the continental United States, a minimum notification of 30 working Days shall be provided. The Contractor's purchase orders for Material and Equipment, for which plant inspection has been designated by the Engineer, shall bear a suitable notation advising Suppliers and Subcontractors of inspection requirements.
- B. If the required notification is not given, the District shall schedule the inspection at its convenience, and the activity to be witnessed shall not proceed until the Engineer arrives or until the District notifies the Contractor that it is choosing to waive its witness inspection requirement.
- C. The Engineer or an authorized representative shall have free entry at all times to such parts of the plant as concerns the manufacture or production of Material and Equipment for the District. Adequate facilities shall be furnished free of charge to make the necessary inspection.
- D. The Engineer may attend scheduled inspections of the off-site plant for Material, Equipment, or software to be incorporated into the Work. The District assumes no obligation to inspect Material or Equipment at the place of manufacture or production or at the shipping point. Unless otherwise noted in the Special Provisions, cost for District representatives to attend off-site inspections shall be borne by the District.

- E. In the absence of the Engineer, the District may reject the processes completed to date and require the activity to be redone. Delays resulting from waiting on the witness inspection for the reasons given above shall be considered an Inexcusable Delay. Expenses incurred by Delays or repeat of the Work process shall be borne by the Contractor.
- F. Should any inspection attended by the Engineer be delayed, the Contractor shall reimburse the District for the actual salary costs of District staff, consultants, and special inspection firms multiplied by their actual, fully burdened labor rates and shall reimburse the actual cost of other direct costs incurred due to the inspection Delay.
- G. The Contractor shall provide safe passage and access for inspection of the Work in any area. Off-site storage areas and warehouse facilities are also subject to inspection.
- H. Material, products, and Equipment that are specified to require testing and inspection at the point of origin shall receive and pass such testing and inspection prior to being shipped to the Project site.

**9.08. Sampling of Material**

- A. The Contractor shall furnish samples of Material as specified and as requested by the Engineer at no additional cost to the District. Samples shall be obtained and tested whenever necessary to determine the quality of the Material and compliance with the Contract Documents.
- B. The Contractor shall assist the Engineer, District staff, regulatory agency personnel, and third parties in collecting or providing samples.
- C. The Contractor shall not use Material specified to be tested in the Work until such testing indicates satisfactory compliance with the Contract Documents.

**9.09. Testing**

- A. Unless otherwise specified, the Contractor is responsible for completing all required testing at no additional cost to the District. All tests shall be performed by independent testing firms accredited by the appropriate authority.
- B. The testing firm shall be staffed with experienced personnel, properly equipped, and fully qualified to perform the tests in accordance with the specified standards. The Contractor shall submit documentation demonstrating that the testing firm and its personnel are properly accredited by the appropriate authority.
- C. The Engineer has the right to inspect Work performed by the independent testing firm. This may include inspection of the independent testing firm's internal QA records (e.g., QA manual, equipment calibrations, proficiency sample performance, etc.).

- D. Testing shall be completed in accordance with the specified standards in effect on the date bids are due. Where no standard is specified, testing shall be completed in accordance with the applicable ASTM and/or the latest published edition of the *State of California Department of Transportation Standard Specifications and Standard Plans* and updates thereto.
- E. The Contractor shall submit copies of all manufacturer test reports performed to satisfy the applicable Material standard specification or test standard (e.g., certified mill test reports). Reports shall identify the lot of Material represented by the test. The manufacturer test reports supplement the inspection, sampling, and testing provisions otherwise required by the Contract Documents.
- F. Content of Test Reports: Inspection and test results shall be documented and evaluated to ensure that requirements have been satisfied. Individual test records shall contain the following information:
  - 1. Date and time of test.
  - 2. Item tested, item number, and item description.
  - 3. Test designation.
  - 4. Test work sheet, including location the sample was obtained.
  - 5. Test results.
  - 6. Acceptance or rejection.
  - 7. Retest information, if applicable.
  - 8. Control requirements.
  - 9. Tester signature.
- G. The Contractor shall immediately inform the Engineer of all test results.
- H. Availability and Submittal of Test Reports: All test reports shall be made available to the District's representative for viewing within 24 hours and must be submitted to the Engineer within seven (7) Days after each test is completed, with the Contractor's weekly inspection reports. Each test report for each type of test shall be consecutively numbered. The Contractor shall maintain a copy of all test results on-site.
- I. Control of Measuring and Test Equipment: Measuring and/or testing instruments shall be adequately maintained, calibrated, and adjusted to maintain accuracy within prescribed limits. Calibration shall be performed at specified periods against valid standards traceable to nationally recognized standards and documented.

**9.10. District Quality Assurance**

- A. Quality assurance (QA) involves the activities of the District that are separate from, but in coordination and cooperation with, the Contractor to monitor that the level of quality set by the Contract Documents is achieved. Through periodic review, inspections, and tests, the District monitors that the Contractor's QC is working effectively and that the end product complies with the level of quality established by the Contract.

**9.10.01 Testing by the District**

- A. The District may arrange for independent tests at its own cost. In such cases, the Contractor shall cooperate with the District's independent testing firm. This testing by the District shall not relieve the Contractor of its obligation to do the QC testing required under the Contract.
- B. If independent testing indicates noncompliance with the Contract Documents, any retesting shall be charged to the Contractor.
- C. Upon request, the Engineer will furnish the Contractor with copies of test results.

**9.10.02 Defective Work**

- A. All Work not conforming to the Contract shall be considered defective and subject to rejection by the Engineer regardless of when or where the deficiency is detected. Unless otherwise permitted by the Engineer, rejected Work shall be remedied, removed, or replaced by the Contractor in a manner acceptable to the Engineer and at no additional cost to the District.
- B. Noncompliance Notice (NCN): The Engineer may issue a NCN to the Contractor for any detected defective Work or a portion thereof.
- C. The Contractor shall provide a written response within five (5) working days after receipt of the NCN. The Contractor's response shall detail either (i) reasons it believes that the Work was performed in accordance with the Contract Documents; or (ii) the corrective action it intends to take to correct the defective Work.
- D. If the Contractor disputes issuance of the NCN, the Engineer shall respond after receipt of the dispute by either (i) withdrawing the NCN; or by (ii) directing the Contractor to correct the Work. If the Engineer directs the Contractor to correct the Work, the Contractor shall make such correction within five (5) working days after receipt of such direction from the Engineer or at such other time as may be agreed to with the Engineer.
- E. If the Contractor fails to promptly comply with any order of the Engineer to correct the defective Work, the Engineer may terminate the Contractor's right to proceed with the affected Work and cause the defective Work to be removed and replaced at the Contractor's expense.

1. The District shall deduct from the Contractor's progress payment any cost it incurs in correcting the defective Work, including, but not limited to, rectifying the nonconforming Work, removing and storing salvageable Material and Equipment, discarding other Materials and Equipment, administrative costs, and all costs of repair or replacement of the Work of others.
2. If the District self-performs the remediation of the Contractor's nonconforming Work, the Contractor shall also be charged for the District's overhead markup.
3. If the current Contract unpaid balance and retention are insufficient to cover this amount, the Contractor shall reimburse the District.

**9.11. Plumbing and Piping Quality**

- A. The Contractor shall consult with industry and manufacturer representatives for all piping Material being used in the Work. The purpose of this consultation is to ensure that the Contractor's personnel are fully trained and knowledgeable, possess written instructions on proper assembly, and have all recommended tools for quality Work. Consultation shall also include discussions between industry and manufacturer representatives and Contractor management and construction staff on the causes of past plumbing and piping failures and of problems and methods of avoidance. The Contractor shall provide training for its forces as required to produce consistent, high-quality Work without failed tests and warranty problems.

**9.12. Control of Materials and Equipment**

- A. This Article includes general product requirements and requirements for delivery, storage, packing, loading, unloading, transportation, protection, and selection of Material and Equipment. Additional specific requirements for delivery, handling, protection, loading, and unloading may be specified within the Technical Specifications for Materials and Equipment.
- B. The Contractor shall furnish Materials and Equipment as specified. Only new Material and Equipment conforming to the requirements of the Contract shall be incorporated in the Work.

**9.12.01. Source of Material and Equipment**

- A. The Contractor shall furnish a list of sources of Material and Equipment to the Engineer in sufficient time to permit proper inspection and testing of Material and Equipment in advance of their use. Inspection and tests shall be made and reports rendered. It is understood that such inspections and tests shall not be considered a guarantee of acceptance of any Material or Equipment that may be delivered later for incorporation in the Work. Any Equipment or Materials that, after has in any way become non-compliant with the Contract, shall not be used in the Work.

- B. At the option of the Engineer, the source of supply of each of the Material shall be approved before the delivery is started. All Material proposed for use may be inspected or tested at any time during their preparation and use. If it is determined that sources of supply that appeared satisfactory do not furnish a uniform product, or if the product from any source proves unacceptable at any time, the Contractor shall furnish approved Material from other sources.

**9.12.02. Product Data and Samples**

- A. The Contractor shall furnish without charge such samples as may be required.
- B. No Material or Equipment shall be delivered to the Work without prior approval of submittals by the Engineer.
- C. The Contractor shall provide products by the same manufacturer when products are of similar nature, unless otherwise specified; provide identical products when products are required in quantity; and provide products with interchangeable parts whenever possible.
- D. The Contractor shall require each Equipment manufacturer to have maintenance facilities meeting the following minimum requirements:
  - 1. Minimum three (3) years' operational experience.
  - 2. Located in the continental United States.
  - 3. Equipment and tools capable of making repairs.
  - 4. Staff qualified to make repairs.
  - 5. Inventory of maintenance spare parts.
- E. All Materials, products, and Equipment shall be new, of the specified quality, and free of defects. Where samples have been submitted, the Materials, products, and Equipment incorporated into the Work shall be equal to the samples that have been approved. Should Materials, products, and Equipment required by the Work not be specified or described on the Drawings, the Contractor shall provide Materials, products, and Equipment of high, generally accepted quality standards that are comparable to the Work and that meet the identifiable needs of the Work.

**9.12.03. Transportation and Delivery**

- A. The Contractor shall:
  - 1. Transport and handle items in accordance with manufacturer's instructions.
  - 2. Schedule delivery to reduce long-term, on-site storage prior to installation and/or operation. Under no circumstances shall Equipment be delivered

to the site more than one (1) month prior to installation without written authorization from the Engineer.

3. Coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged, or sensitive to deterioration.
  4. Deliver products to the site in the manufacturer's original sealed containers or other packing systems, complete with Material Safety Data Sheets (MSDS) and instructions for handling, storing, unpacking, protecting, and installing.
- B. The Contractor may store Material and Equipment only in those locations approved by the Engineer. The Contractor is responsible for maintaining and restoring any affected areas as required by the Engineer.
- C. All items delivered to the site shall be unloaded and placed in a manner that shall not (i) impact the Contractor's normal construction operation or those of Subcontractors and other contractors; (ii) interfere with the flow of necessary traffic; and (iii) interfere with the District's normal operations and maintenance activities. In addition, the Contractor shall:
1. Provide necessary Equipment and personnel to receive, accept, and unload all items delivered to the site.
  2. Promptly inspect the shipment to assure that products comply with requirements, quantities are correct, and items are undamaged. For items furnished by others (i.e., the District, other Contractors), perform inspection in the presence of the Engineer and shall notify the Engineer verbally and in writing of any problems.

#### **9.12.04. Storage and Protection of Material**

- A. Store and protect products in accordance with the manufacturer's instructions with seals and labels intact and legible.
- B. Material and Equipment shall be stored to ensure preservation of quality and fitness for the Work. They shall be placed under cover when necessary and shall be stored in a manner that will facilitate prompt inspection.
- C. Loose granular Material shall be stored on solid, flat surfaces in a well-drained area. Mixing with foreign matter shall be prevented.
- D. Cement, lime, and similar moisture-sensitive Material shall be stored under a roof and off the ground and shall be kept dry at all times. All structural, miscellaneous, and reinforcing steel shall be stored off the ground or to otherwise prevent accumulation of dirt or grease and in a position to prevent accumulation of standing water and to minimize rusting. Beams shall be stored with the webs vertical. Precast concrete shall be handled and stored in a manner to prevent



accumulation of dirt, standing water, staining, chipping, or cracking. Brick, block, and similar masonry products shall be handled and stored in a manner to reduce breakage, cracking, and spilling to a minimum.

- E. Material and Equipment storage areas shall be suitably secured to protect Material and Equipment from damage or from theft.
- F. Except as stated in the Contract Documents or as otherwise approved by the Engineer, locations and arrangements for storage sites for Material and Equipment shall be selected and maintained by the Contractor at the Contractor's expense. Full compensation for furnishing such storage sites as may be necessary or as required by the Contractor shall be considered as included in the Bid price; no additional payment shall be made.
- G. The storage and handling of potential pollutants and Hazardous Material, including, but not necessarily limited to, gasoline, diesel, oils, paint, and solvents shall be in accordance with all Federal, State, and Local Laws and all other requirements. Temporary special storage enclosures, double-walled tanks, berms, or other protective facilities shall be provided as required by law. All Hazardous Material shall be stored and handled in strict accordance with the MSDS for each product. A copy of each MSDS shall be maintained at the Project site by the Contractor.
- H. Any Equipment or Materials that, in the opinion of the Engineer, has become damaged as to be non-compliant with the Contract shall be promptly removed from the site of the Work. The Contractor shall receive no compensation for the Materials or Equipment removed or for removal costs.

#### **9.12.05. Maintenance and Protection of Installed or Stored Equipment**

- A. All mechanical and electrical Equipment and instruments subject to moisture or corrosive damage by the atmosphere if stored outdoors (even though covered) shall be stored in a weather-tight building and provided with adequate ventilation, as required, to prevent damage. The Contractor shall maintain temperature and humidity within the range required by the Equipment or instrumentation manufacturer. The building may be a temporary structure on the site or elsewhere, must be painted in a neutral color, and must be no larger than required.
- B. All Equipment shall be stored fully lubricated with oil, grease, and other lubricants unless otherwise instructed by the manufacturer.
- C. Moving parts shall be rotated or otherwise maintained in accordance with the manufacturer's instructions. Upon installation, the Contractor shall periodically exercise the Equipment to ensure that it does not deteriorate from lack of use.
- D. Lubricants shall be changed as frequently as required by the manufacturer between installation and acceptance. New lubricants shall be put into the Equipment at the time of acceptance.

- E. The Contractor shall maintain a preventive maintenance record for all Material and Equipment installed but not yet accepted that requires preventive maintenance by the manufacturer. A monthly report of all maintenance performed shall be submitted to the Engineer to certify maintenance has been performed as recommended by the manufacturer.
- F. The Contractor shall maintain and repair, as recommended by the manufacturer, any Equipment that has been installed but not yet accepted.
- G. The Contractor shall clean exposed Material and Equipment just prior to turnover to the District.
- H. Prior to the District's use or acceptance, the Contractor shall have the manufacturer inspect any Equipment valued at more than \$2,500 and stored longer than three (3) months and certify that its condition has not been detrimentally affected. Such certification must affirm that the Equipment has not been adversely impacted and the Equipment shall be guaranteed as specified. If such a certification is not provided, the Equipment shall be determined to be defective and shall be replaced at the Contractor's expense. Certification does not relieve the Contractor from meeting all testing requirements.

**9.13. District-Furnished Material**

- A. Material furnished by the District shall be available as designated in the Special Provisions. The Contractor shall load, unload, and haul such Materials to the site of the Work at the Contractor's expense. Once received by the Contractor, the Contractor is responsible for all Material furnished and shall pay any damages and storage charges.

**9.14. Final Inspection of Work**

- A. The Engineer shall make the final inspection of the Work in accordance with Section 11. Contract Closeout. The Contractor is directed to Section 11. Contract Closeout regarding the requirements necessary to obtain final inspection by the Engineer.

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## **SECTION 10. ENVIRONMENTAL**

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### **10.01. Good Neighbor Requirements**

- A. The District is a public entity that takes seriously its responsibility to be a “Good Neighbor.” Accordingly, the District seeks to perform its activities, including construction of its facilities, in a manner that takes into consideration the needs of the neighborhood and that is minimally disruptive.
- B. The Contractor hereby acknowledges the critical importance of meeting the Contract requirements as set forth in these Specifications regarding “good neighbor requirements,” which include, but are not limited to, public safety, working hours, noise pollution and vibration, air pollution, spillage and dust, traffic control, truck haul routes and parking restrictions, and storm water pollution.
- C. The Contractor shall adhere to the above “good neighbor requirements” which relate to the lessening of the impact causes by the Work being performed under this Contract. The Contractor acknowledges that its responsibility to observe the restrictions of this Contract relating to the above requirements is significant, critical, and a material provision of this Contract. Any non-compliance with these requirements may be cause for the District to suspend Work.

### **10.02. Storm Water Pollution Prevention Plan**

- A. The Contractor shall prepare and submit to the District an electronic and hard copy Storm Water Pollution Prevention Plan (SWPPP) as required under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharge Associated with Construction and Land Disturbance Activities Order No. 2009-009-SWQ, (as amended).
- B. The SWPPP shall incorporate all appropriate storm water Best Management Practices (BMPs) and all risk-based requirements to comply with the NPDES General Permit. The BMP descriptions and the template for the SWPPP shall be in accordance with the current California Stormwater Quality Association (CASQA) Construction BMP Handbook/Portal, which can be purchased at <http://www.cabmphandbooks.com>.
- C. The SWPPP shall be written, amended, certified, and stamped by a Qualified SWPPP Developer (QSD). The implementation of BMPs and all pollution control measures shall be overseen by a Qualified SWPPP Practitioner (QSP). The QSD and QSP shall be provided by the Contractor and shall meet the certification requirements as defined under Section VII of the NPDES General Permit.
- D. The District shall make available the following: base maps for the Contractor’s use in preparing the vicinity and site maps for the General Permit; a copy of preexisting site and site design information; and a copy of the completed Notice of Intent (NOI), if required.

- E. Prior to the commencement of any Work at the site(s), the SWPPP shall be favorably reviewed by the Engineer. Review by the Engineer shall not relieve the Contractor of responsibility for the completeness of the SWPPP nor for the accuracy of assumptions, data, and information used and procedures contained in the Contractor's SWPPP or the adequacy thereof.
- F. The SWPPP shall be revised and/or amended by the Contractor's QSD as necessary during the progress of Work to comply with Federal, State, and local regulations and the requirements of these Specifications. All revisions and amendments shall be submitted to the Engineer. Revisions and/or amendments to the SWPPP shall be considered incidental to this item of Work; no additional payment shall be made.
- G. The Contractor's personnel supervising the earthwork, sitework, erosion control, and sedimentation control and inspecting erosion controls shall be required to read the SWPPP. A copy of the SWPPP shall be maintained at the construction site by the Contractor and shall be available at all times for review by all Contractors, by the District, or by regulatory agency personnel.

**10.02.01. Storm Water BMPs**

- A. The SWPPP shall include appropriate BMPs, as required, to comply with the specified risk level for the Project.
- B. The Contractor shall design, construct, operate, inspect, and maintain the BMPs in accordance with the NPDES General Permit and with the instructions provided in the current CASQA Construction BMP Handbook/Portal.
- C. The BMPs shall include, but shall not be limited to, the following:
  - 1. Erosion control.
  - 2. Sediment control.
  - 3. Run-on/runoff control.
  - 4. Wind erosion control.
  - 5. Tracking control.
  - 6. Non-stormwater Management.
  - 7. Waste Management and Materials Pollution Control
  - 8. Project-specific Environmental BMPs as specified in the Contract.

**10.02.02. Regulatory Fines**

- A. The Contractor is responsible for any penalties or fines imposed upon the District by the Regional Water Quality Control Board (RWQCB) or by other regulatory

bodies due to the Contractor's noncompliance with the requirements of the NPDES General Permit. The actual cost of such penalties or fines shall be subtracted from the amount due, or that may become due, the Contractor.

**10.03. Water Pollution Discharges and Remedies**

- A. The Contractor shall remedy immediately any public nuisance or deficiency arising from, or in consequence of, the Contractor's failure to perform the Work specified under Article 10.02. Storm Water Pollution Prevention Plan and Article 19.02. Other Discharge Permits.
- B. Upon the Contractor's failure to make appropriate and timely remedies as directed by the Engineer in the best interests of the public, the Engineer may employ private or public workforces and Equipment to perform the Work. The Contractor shall be charged all costs associated with such remedy including actual hours recorded by District staff, District consultants, and District services, multiplied by their actual, fully burdened labor rates. Such action(s) taken by the Engineer shall not preclude the Engineer from taking other appropriate actions and shall not relieve the Contractor of responsibility to comply with these Specifications.

**10.04. Water Quality**

- A. The Contractor shall meet all applicable regulatory requirements to ensure that any discharges to surface waters will not cause violation to the State water quality standards or violation of regulatory permits issued by regulatory agencies.
- B. The Contractor shall prevent water quality degradation of water bodies and/or of storm drains. Water quality is measured in terms of pollution substances, turbidity, dissolved oxygen, pH, and temperature.
- C. Oily, greasy, or sediment-laden substances or other Materials that originate from the Contractor's operation shall not be allowed to enter, or be placed where they may later enter, any reservoir, river, creek, or stream.
- D. The Contractor shall comply with the requirements of the following permits, where applicable, and as specified in the Special Provisions, Article 19.04. Water Pollution Discharges:
  - 1. State Water Resources Control Board (SWRCB) and (NPDES), General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities
  - 2. U.S. Army Corps of Engineers CWA Section 404 Permit, and Regional Water Quality Control Board/State Water Resources Control Board CWA Section 401 Water Quality Certification. And/or Waste Discharge Permit.
  - 3. Other individual RWQCB NPDES Permits.

- 4. Department of Fish and Wildlife 1603 Stream Bed Alteration Agreement.
- E. The Contractor shall implement any additional water quality best management practices and mitigation measures described in these Specifications.

**10.05. Burial Sites**

- A. The Contractor shall comply with all applicable laws and regulations pertaining to burial sites, including, but not limited to, Ordinance Code Section B6-18 of the County of Santa Clara and requirements of Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5. Upon discovering or unearthing any burial site as evidenced by human skeletal remains, the person making the discovery shall immediately stop work and notify the County Coroner. The Contractor shall also notify the Engineer. The Contractor shall immediately secure the site and protect any human remains from further disturbance.
- B. Upon determination by the County Coroner that the remains are Native American, the Coroner may contact the California Native American Heritage Commission and the County Coordinator of Indian Affairs. No further excavation or disturbance within 30 feet of the site or of any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the California Native American Heritage Commission and/or by the County Coordinator of Indian Affairs, and by the Engineer.
- C. The Contractor is advised that if burials are encountered, it may be necessary to suspend Work on the Project to comply with the above requirements. Payment for a Delay of more than one (1) workday for each occurrence shall be made in accordance with Article 3.07. Change in Contract Price(s) and with Article 3.08. Change in Contract Time(s).

**10.06. Cultural Resources (Archeological Discovery)**

- A. The Contractor is advised that if archeological artifacts are encountered, the Contractor will immediately notify the Engineer; it may be necessary to suspend Work on the Project to comply with this Article.
- B. Work at the location of the find will halt immediately within 30 feet of the find. If an archaeologist is not present at the time of the discovery, the Engineer will contact an archaeologist for identification and evaluation pursuant to Public Resources Code Section 21083.2, California Code of Regulations Section 15126.4 (California Environmental Quality Act [CEQA] Guidelines) and to the mitigation measures of the Project CEQA document. If the archaeologist determines that the artifact is not significant, the Engineer will authorize the Contractor to resume construction.
- C. If the archaeologist determines that the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. The Contractor will comply with these avoidance procedures.

- D. If the artifact cannot be avoided, the archaeologist will develop an action plan that will include provisions to minimize impacts and, if required, a data recovery plan for recovery of artifacts in accordance with Public Resources Code Section 21083.2 and CEQA Guidelines Section 15126.4.
- E. The Contractor shall delay Work until the action plan and, if required, the data recovery plan, are favorably reviewed by the Engineer. Once the action plan and the data recovery plan are favorably reviewed, the Contractor shall comply with the requirements of these plans.

**10.07. Noise Pollution and Vibration**

- A. The Contractor shall be responsible for ensuring that noise produced by construction activities does not exceed the applicable local noise ordinance standards and is in compliance with the performance standards set forth in Section 18. Permits and Regulations of the Special Provisions.
- B. At a minimum, the Contractor shall exercise precautionary measures listed below. Implementation of these measures shall in no way relieve the Contractor of the responsibility of compliance with the noise criteria.
  - 1. Air compressors and internal combustion engines shall be in good operating condition that meet or exceed original factory specifications and shall be equipped with high grade mufflers, air inlet silencers (where appropriate), and noise suppressers.
  - 2. All mobile or fixed noise-producing machinery and Equipment, including "package" Equipment (e.g., fans, cranes, arc welders, air compressors, electrical operators, etc.), shall be suitably housed, enclosed, shielded, and equipped with noise-control features or muffled to meet the noise limits specified in the Special Provisions.
  - 3. All mobile or fixed noise-producing Equipment used by the Contractor that is regulated for noise output by Federal, State, or local law shall comply with this regulation while in use. This shall include vehicles licensed for use on public highways.
  - 4. Electrically powered Equipment instead of pneumatic- or internal-combustion-powered Equipment shall be used where feasible.
  - 5. The use of noise producing signals, including horns, whistles, alarms, and bells, shall be for safety warning and emergency purposes only.
  - 6. No music system, including personal or vehicle radio, tape, CD players, or the like, shall be audible at the Project right-of-way line.
  - 7. Trucks or other mobile Equipment shall not use engine decompression ("Jake Brakes") for deceleration on grades where feasible.



- C. The Contractor shall take all necessary precautions during its operations to limit peak particle velocities from vibratory compaction or percussion Equipment so that they do not become a public nuisance or result in property damage.
- D. Any Equipment causing noncompliance with the noise or vibration criteria shall be removed from the job site as directed by the Engineer.

**10.08. Air Pollution**

- A. The Contractor shall comply with all applicable requirements of the applicable air quality management or control district and California Air Resources Board regulations.
- B. Idling of internal combustion engines shall be held to an absolute minimum. All vehicles with internal combustion engines shall be fitted with spark arrestors.
- C. The Contractor shall not use any of the listed Materials banned by BAAQMD Regulation 8, Rule 15.
- D. Serpentine Materials that have average asbestos content greater than five (5) percent as determined by an aggregate bulk sample analysis pursuant to Air Resources Board Test Method 435 or an alternate method approved by the Air Resources Board or BAAQMD (see also California Code of Regulations, Title 17, Section 93106) shall not be used for surfacing.
- E. Except as provided by law, idling of heavy-duty diesel trucks with gross vehicular weight ratings of greater than 10,000 pounds shall be no more than five (5) minutes per California Code of Regulations, Title 13, Section 2485.
- F. The Contractor shall implement any additional air quality best management practices and mitigation measures described in these Specifications.

**10.09. Spillage and Dust Control**

- A. Care shall be taken to prevent spillage when hauling is done. Spillage resulting from hauling operations along or across any public-traveled way shall be removed immediately by the Contractor. The Contractor shall pay all expenses for removal of spillage.
- B. The Contractor shall control dust nuisances originating from the Contractor's operations either inside or outside the right of way.
- C. The Contractor shall provide all necessary precautionary measures to control dust and to prevent spillage on public-traveled ways. At a minimum, the Contractor shall provide the measures listed below and shall also implement additional dust control best management practices and mitigation measures described in these Specifications. Implementation of these measures shall in no way relieve the Contractor of the responsibility to comply with these Specifications.

1. Active maintenance areas, unpaved access roads, and staging areas shall be kept sufficiently moist and watered as necessary or shall be applied with nontoxic soil stabilizers to control dust generation.
  2. Trucks hauling sediments and other loose Material shall be covered and shall maintain at least six (6) inches of freeboard.
  3. Tailgates of trucks shall be sealed.
  4. Trucks shall be brushed down before leaving the site.
  5. Paved site access roads shall be swept using vacuum-powered street sweepers when visible soil Material is carried onto the roadway.
  6. During high winds, the excavation and grading activity shall be watered or the activity suspended, if necessary, to control dust.
  7. Inactive areas shall be sprayed with soil stabilizers or shall be seeded to avoid erosion or dust.
  8. Exposed stockpiles shall be watered, enclosed, covered, or sprayed with soil stabilizers.
  9. Traffic speeds within the Project right of way shall be limited to 15 mph. For off-site restriction, comply with local agency requirements.
  10. Sandbags or other bank protections shall be installed to prevent silt runoff to roadways.
- D. The Contractor shall immediately remedy any spillage and dust nuisance or deficiency arising from, or in consequence of, the Contractor's failure to perform the Work specified in these Specifications.
- E. Upon the Contractor's failure to make timely remedies determined by the Engineer to be necessary and in the best interests of the public, the Engineer may employ private or public workforces and Equipment to perform the Work. The Contractor shall be charged all costs associated with such remedy including actual hours recorded by District staff, District consultants, and District services, multiplied by their actual, fully burdened labor rates. Such action(s) taken by the Engineer shall not preclude the District from taking other actions as deemed appropriate and shall not relieve the Contractor of responsibility to comply with these Specifications.

**10.10. Traffic Control**

- A. Traffic control shall consist of all work and Materials necessary to maintain safe vehicular, pedestrian, and cyclist traffic during construction and to perform "best management practices" to mitigate high-peak and high-volume construction traffic, prevent idling and queuing, establish site access limitations and mitigation

measures, identify haul routes, and provide overall control of all construction traffic entering, exiting, and operating within the Project site.

- B. All traffic control Work shall be performed in accordance with the requirements of the local agency having jurisdiction and California Department of Transportation requirements, if applicable. If required, the Contractor shall prepare a traffic control plan and submit said plan to the Engineer and to the appropriate agency having jurisdiction for favorable reviews in advance of the Work at the site.
- C. The Contractor shall cooperate with the local agency having jurisdiction relative to handling traffic around the construction area. The Contractor shall make its own arrangements relative to keeping the Work area clear of parked vehicles to maintain sight visibility and access to adjacent properties. Existing road signs shall not be blocked at any time.
- D. Truck traffic and haul routes shall be in compliance with local permits and ordinances. The Contractor shall obtain, at the Contractor's expense, any required haul route permit from the local authority having jurisdiction for transporting to and from the Project site construction Material and the disposal of surplus Material.
- E. The Contractor shall conduct its operations and schedule cleanups that cause the least possible obstruction and inconvenience to traffic, pedestrians, cyclists, and adjacent property owners.
- F. Damage done by the Contractor during the course of its Work to adjacent city, town, county, or private property shall be repaired or replaced in kind and as directed by the Engineer.
- G. Personal vehicles of the Contractor's employees and the Contractor's Equipment and vehicles shall not, at any time, be parked on the traveled way, shoulders, medians, or lanes that have not been approved for closure. When entering or leaving roadways carrying public traffic, the Contractor's Equipment, whether empty or loaded, shall in all cases yield to public traffic and shall travel in the direction of the traffic. Flaggers and traffic signs may be required to control this activity. No driveways or private roads shall be blocked. Safe access must be maintained for pedestrian traffic throughout the Work areas at all times.
- H. Those parts of public streets, right of ways, and sidewalks that are allowed to be occupied by the Contractor shall be immediately vacated by the Contractor and returned to public use when the Contractor's use thereof is no longer necessary for the construction Work.
- I. The Contractor shall comply with and pay for all costs associated with Public Convenience Section 7-1.03; Public Safety Section 7-1.04; and Temporary Traffic Control Section 12 of the State Specifications; and Article 8.01. Public Safety, of these Standard Provisions Specifications. Nothing in these Specifications shall be construed as relieving the Contractor from its

responsibility as provided in Public Safety Section 7–1.04 of the State Specifications.

- J. The Contractor shall coordinate with the appropriate local agencies having jurisdiction to receive their approval in the event any temporary lane closures on public streets are needed for the Contractor's operation. Any traffic signing and flaggers as approved by the local agencies for said lane closures shall be in place prior to closing the lane to traffic.

#### **10.11. Regulated Material Management**

- A. Regulated Material includes, but shall not be limited to, Hazardous Material and Hazardous Waste.
- B. The Contractor is responsible for and shall obtain all required permits and pay all fees and taxes for satisfying the requirements of any regulatory agency for the storage, monitoring, usage, transportation, safety, and reporting, or for any other requirements regarding the management of Regulated Material on and off the Project site(s).
- C. The Contractor shall not allow Regulated Materials to spill on District property or on easements or on other public or private right of ways. Any spillage of Regulated Materials resulting from the Contractor's operation shall be removed immediately by the Contractor at the Contractor's expense.
- D. The Contractor shall immediately notify the Engineer of any potentially Hazardous Materials or Hazardous Waste encountered at the worksite and shall take all necessary action to prevent exposure of personnel until all material is identified and proper action can be taken.

##### **10.11.01. Storage of Regulated Material**

- A. Prior to the storage or use of any Regulated Materials, the Contractor shall submit to the Engineer a Regulated Materials Storage and Use Plan (Plan). The Plan shall include (i) an inventory of all Regulated Materials to be stored or used at the Project site that equals or exceeds any of the following separate material phases: 55 gallons liquid, 200 cubic feet of compressed gas, or 500 lbs. solid; (ii) the maximum quantity of Materials to be stored; (iii) purpose of the Materials; (iv) the MSDS for each Material; (v) a detailed description of how the Materials will be stored (including secondary containment where required by applicable regulatory agencies); (vi) a site plan drawn to scale; (vii) storage area maps drawn to scale; (viii) a detailed description of how the Materials will be monitored; (ix) a detailed description of how wastes from the Materials will be stored and/or disposed; and (x) a detailed description of the procedures to be followed in the event of an uncontrolled release of the Regulated Materials.
- B. The Plan shall be submitted to the Engineer and favorably reviewed at least 30 days prior to the storage or use of any Regulated Materials. The Plan shall be updated and submitted to the Engineer by the Contractor upon the addition of

new Regulated Materials not listed previously or upon a 100 percent (or greater) increase in quantity of a Regulated Materials that is listed in the plan.

**10.11.02. Regulated Material Discharges or Releases**

- A. The Contractor is responsible for all discarded or abandoned Material, including Regulated Materials and Hazardous Waste, generated as a result of the Contractor's operations unless specifically noted otherwise in these Specifications. The Contractor shall comply with Article 3.09. Differing Conditions.
- B. In the event of a discharge or release of a Regulated Materials from the Contractor's operation, the Contractor is responsible for notifying the proper authorities, providing containment of the material, identifying the contaminants, investigating the extent of all contaminants, testing and removing contaminated materials, disposing of contaminated materials, and verifying the removal of all contaminated materials. These activities shall be performed to the satisfaction of the Engineer at the Contractor's cost. The Contractor shall perform any Work and provide any and all documentation required by the District and by all Federal, State, and local agencies. The Contractor shall provide to the Engineer copies of all correspondence and reports related to these activities. All Work performed to accomplish these activities shall be in accordance with Federal, State, and local regulations.
- C. In the event of a discharge or release of Regulated Material, the Contractor shall notify the Engineer immediately. Immediate notifications may be verbal. The Contractor shall submit a detailed written report to the Engineer within 24 hours of the discharge or release. The written report shall include; a description of events leading to the discharge or release, action taken to prevent or control the discharge or release, a description of the discharge or release, the quantity of Material discharged or released, method used to determine the quantity discharged or released, type of Material discharged or released, MSDS for the Material(s) involved, a description of the area affected by the discharge or release, agencies notified and date and time of notification, and status of the cleanup. The report shall also include the proposed investigation, cleanup, and verification sampling activities.
- D. All expenses incurred by the Contractor as a result of or to remedy the discharge or release of Regulated Materials shall be borne solely by the Contractor; no additional compensation shall be made. The Contractor shall be responsible for signing the Nonhazardous Waste Manifests and the Hazardous Waste Manifests and for paying the State Superfund fees, the generator's fees, and other costs of disposal of these wastes unless specifically stated otherwise in these Specifications. The Contractor shall be identified as the owner and generator of the wastes associated with unauthorized releases or discharges.

**10.11.03. Hazardous Waste**

- A. The Contractor shall manage the Hazardous Waste generated from this operation in accordance with the Specifications below:
1. Labeling: The Contractor shall completely fill out and affix a "Hazardous Waste" label to each Hazardous Waste container for the Contractor's operations. Each Hazardous Waste label shall contain, at a minimum, (i) the words "HAZARDOUS WASTE"; (ii) information on the generator (i.e., name, address, phone number); (iii) EPA identification number for the waste stream; (iv) EPA and/or California Waste Code; (v) waste accumulation starting date; (vi) identification and content of the waste; (vii) the physical state of the waste (i.e., solid or liquid); (viii) and the hazardous property (i.e., flammable, toxic, corrosive, reactive, etc.). If the primary container is placed inside a secondary container, then the Contractor shall also prepare and affix another Hazardous Waste label on the secondary container.
  2. Secondary containment: The Contractor shall provide appropriate secondary containment for all storage areas for Hazardous Materials and Hazardous Waste. In the case of an installation with one (1) primary container, the secondary containment shall contain at least 110 percent of the volume of the primary container. In the case of an installation with multiple primary containers, the secondary containment shall contain 150 percent of the volume of the largest container or ten (10) percent of the aggregate internal volume of all primary containers in the storage facility, whichever amount is greater. If the storage facility or storage system is open to rainfall, then the secondary containment must be able to additionally accommodate the volume of a 24 hour rainfall as determined by a 25 year storm history.
  3. Accumulation time limit: The Contractor shall properly haul and dispose of all Hazardous Waste within 90 Days from the accumulation starting date identified on each Hazardous Waste label or on the completion date of the Contract, whichever event comes first. The waste accumulation starting date for each waste stream begins when the first drop of the waste is placed in the container.
  4. Hauling and disposal of waste: The Contractor shall be responsible for using appropriate Hazardous Waste haulers and disposing of all Hazardous Waste in accordance with Federal, State, and local regulations.
- B. Waste Manifests: Prior to issuance of the Project Completion letter, the Contractor shall submit copies of all Hazardous Waste Manifests signed by disposal facilities and certificates of disposal to prove that the Contractor has legally disposed of such materials. The Contractor shall submit four (4) copies of each manifest.

**10.12. Non-regulated Materials**

- A. Non-regulated Material is any substance that is not required by any Federal, State, or local regulations to have special management, storage, disposal, or handling practices.
- B. Non-regulated Material may be disposed at State-permitted, non-hazardous waste landfills.
- C. For non-regulated material to be reused or disposed of on-site or at a site other than a State-permitted landfill, the Contractor must obtain all required permits, agency approvals, and property owner agreements and pay all fees and taxes for all services and Materials required in conjunction with the management, transportation, disposal, and reuse of non-regulated materials.

**10.12.01. Disposal at Other than State-Permitted Landfills**

- A. The Contractor shall enter into an agreement with the property owner prior to disposal of materials and submit a copy thereof to the Engineer conveying a written consent from the property owner receiving the materials providing:
  - 1. a written authorization from the property owner to accept materials at duly noted quantities, types of materials (e.g., soils, debris, etc.), and the disposal property location address; and
  - 2. a written release from the property owner fully absolving the Santa Clara Valley Water District from any and all responsibility and legal liability toward any damage to life and environment in connection with the disposal of the materials on the property.
- B. Prior to the disposal of materials, the Contractor shall provide:
  - 1. copies of all applicable regulatory agency permits, approvals, licenses, and environmental clearances;
  - 2. site specific health and ecological risk assessment and/or compliance with applicable regulatory agency regulations or guidelines, including, but not limited to, the Environmental Screening Levels per the latest guidelines from the San Francisco Bay RWQCB;
  - 3. copies of documentation of communication made by the Contractor with appropriate regulatory agencies on evaluation of regulatory requirements and regulatory agency approvals for disposal of materials; and
  - 4. copies of laboratory testing reports for the materials to be disposed.
- C. Within 15 Days after the disposal of materials at the property location, the Contractor shall submit an acknowledgement duly signed by the property owner certifying the date of receipt of the materials, including quantity and types of

materials received (e.g., soils, debris, etc.), to prove that the Contractor has disposed of the materials at the location designated in the agreement.

- D. Waste Manifests: Prior to issuance of the Project Completion letter, the Contractor must submit copies of all Non-hazardous Waste Manifests signed by disposal facilities and certificates of disposal to prove that the Contractor has legally disposed of such materials. The Contractor shall submit four (4) copies of each manifest.

#### **10.13. Imported Earthfill Material**

- A. The Contractor shall not import earthfill material that is contaminated with Regulated Materials.
- B. If imported earthfill Material is, or is found to be, contaminated by Regulated Materials, the Contractor shall immediately remove the contaminated material and dispose of it in accordance with all applicable laws, ordinances, and regulations; conduct necessary sampling and monitoring to verify that all contaminated material has been removed; and verify to the satisfaction of the Engineer and/or to the appropriate regulatory agencies that any surrounding areas, materials, soils, or waters have not been impacted by the contaminated materials. The subsequent disposal of the contaminated material shall be the responsibility of the Contractor. No compensation shall be made to the Contractor by the District for removal, disposal, replacement, or chemical analysis, or for any other costs associated with the removal, disposal, and replacement of the contaminated material.
- C. For each imported earthfill material to be used on the Project, the Contractor shall submit to the Engineer completed Imported Materials Certification Form; copies of this form are available from the Engineer. If the imported earthfill materials are to be obtained from more than one (1) source, the Contractor shall submit a separate form for each source of earthfill material. This form shall be submitted at least 30 Days prior to the delivery of the earthfill material to the construction site and shall receive favorable review prior to delivery.
- D. The Engineer may obtain soil samples from the site and test them to monitor the Contractor's compliance with these Provisions.

#### **10.14. Migratory Birds**

- A. The Contractor shall comply with all applicable Federal and State laws, rules, and regulations related to the protection of migratory birds, including, but not necessarily limited to, the Federal Migratory Bird Treaty Act (16 USC 703-712 50 CFR Part 21 and 50 CFR Part 10) and the California Department of Fish and Game Code Sections 2000, 3503, 3503.5, 3513, and 3800.
- B. The Contractor shall carry out all activities in a manner consistent with the U.S. Fish and Wildlife Service's Migratory Bird Program. The Contractor shall not pursue, hunt, take, capture, kill, attempt to take, or possess any migratory bird



listed in 50 CFR 10.13, or any part, nest, or egg of any such bird. Active nests are those containing either an egg (or eggs) or young and/or nests used by birds of prey, regardless of the presence of eggs or of young. To determine the occupancy of nests, the Contractor shall rely upon the professional expertise of a Qualified Biologist. See Section 19. Environmental.

- C. The Contractor shall coordinate several measures, including (i) awareness and training of the Contractor's personnel on which bird species are protected, their nesting seasons, and seasonal variability; (ii) surveys to determine the presence of nesting birds in the Project area; (iii) establishment, maintenance, and removal of protective buffer zones around nests; (iv) installation and maintenance of exclusion devices; (v) nest prevention activities; and (vi) monitoring to ensure the adequacy of the compliance measures.

#### **10.14.01. Scope of Work**

- A. The Contractor shall be aware of migratory bird nesting seasons (generally from January 15 to August 31) and variability; provide training to all Contractor personnel on the Project; monitor the Project site; perform preventative and deterrence measures to prevent birds from nesting; preserve and protect pre-established protective buffer zones; perform surveys to determine the potential for protected species to be in the Project area; establish new protective buffer zones around un-prevented nests, as required; install and/or maintain exclusion devices, such as netting and/or wire mesh screens; monitor to assure the adequacy of the compliance measures; and perform any other Work as specified herein to comply with all applicable statutes.
- B. The Qualified Biologist shall monitor regulatory compliance, train Contractor personnel, and coordinate with the Engineer in conformance with (i) this Article; (ii) the Project specific Mitigation Monitoring and Reporting Program (MMRP) requirements relating to this Article; and (iii) all applicable permit conditions. The Qualified Biologist shall:
  - 1. Provide bird nesting awareness training for all personnel working on the Project, including all sub contractors.
  - 2. Monitor the Project site for nest starts and occurrences of active bird nests.
  - 3. Document the location, status, and species of bird for each active nest.
  - 4. Monitor the Work to ensure that protected birds are not disturbed in a manner that could result in noncompliance.
  - 5. Establish protective buffer zones around active nests as specified herein.
  - 6. Ensure protective buffer zones are maintained and nests are not disturbed. Advise when protective buffer zones are no longer needed and can be removed.

7. Monitor the maintenance and effectiveness of bird exclusion devices.
  8. Provide recommendations concerning vegetation management, installation of additional exclusion devices, and maintenance of such devices to prevent bird nesting. Advise when exclusion devices are no longer needed and can be removed.
- C. Within 14 Days of the First Chargeable Day, the District will release the site to the Contractor. Prior to the release, the Engineer and the Contractor shall assess the site to determine the presence of nesting birds and any existing protective buffer zones and exclusion devices within or near the construction areas. In no case shall the District maintain responsibility for the site for more than 14 Days after the First Chargeable Day. Upon release of the site, the Contractor assumes complete responsibility for the site, including Work site monitoring, existing protective buffer zones, and exclusion devices and shall perform all required Work as specified herein.

**10.14.02. Migratory Bird Surveys**

- A. The Qualified Biologist shall perform migratory bird surveys prior to any Project related activity that could pose the potential to affect migratory birds.
- B. The Contractor shall include activities for Qualified Biologist surveys on Project Schedules with assurance that the appropriate migratory bird surveys have been coordinated with the Qualified Biologist and will be performed in advance of activities.

**10.14.03. Migratory Bird Monitoring**

- A. The Contractor is responsible for ongoing monitoring to ensure that migratory birds, their active nests, eggs, and young are not harmed in any way.
- B. The Contractor and Qualified Biologist shall inspect all areas that may be affected by Project activities, including all vegetation, grounds, structures, and bridge(s), with sufficient frequency as needed to identify any new and partially built bird nests.
- C. At the direction of the Engineer and the Qualified Biologist, the Contractor shall be responsible for the removal of any inactive or partially built bird nests with the exception of raptor nests. No birds, nests with eggs, or nests with hatchlings shall be disturbed, nor shall raptor nests be removed unless specified in the Special Provisions Article 19. Environmental.

**10.14.04. Protective Buffer Zones**

- A. Existing protective buffer zones, if any, are shown on the Drawings or shall be communicated to the Contractor prior to the District releasing the site. In addition to District-established buffer zones, new protective buffer zones shall be required if a nest is established or discovered during the Contractor's activities. In the

event that an active nest is discovered in the Project area, or in adjacent areas considered to have the potential to be disturbed by the Contractor's activities, the Contractor shall notify the Engineer and establish a protective buffer zone around the nest. The exact location of the boundaries of protective buffer zones shall be established by the Qualified Biologist and approved by the Engineer. The Contractor shall install temporary fencing at the boundary of each new protective buffer zone except as otherwise directed by the Engineer. The fencing shall be Type ESA Temporary Fence per Caltrans Article 14-1.03. The Contractor shall attach signs labeled "Nesting Bird – Access Prohibited" at least every 50 feet along the fencing. The Contractor shall exclude Project activities to preserve and protect all protective buffer zones, including existing ones, at all times.

- B. In the event that an active nest is discovered by the Qualified Biologist, the Biologist shall immediately notify both the Contractor and the Engineer of the active nest and of the applicable protective buffer zone.
- C. The Qualified Biologist shall inspect all active nesting-bird protective buffer zones(s) on at least a weekly basis until such time as the nest is no longer active as confirmed by the Qualified Biologist. Once a nest is no longer active, the protective buffer zone shall be removed.
- D. The Contractor shall be responsible for any added costs or schedule Delays as a result of the establishment of new nests or of new protective buffer zones due to the Contractor's failure to perform bird exclusion responsibilities.
- E. The Contractor shall monitor protective buffer zone operations during the Project. Requirements for the protection of active nests may vary depending on the location and the species involved. The following are general guidelines to be followed by the Contractor when an active nest is encountered:
  - 1. Stop any activities that may harm the nest.
  - 2. Contact the Engineer immediately.
  - 3. Only the Qualified Biologist should approach the nest and only if necessary.
  - 4. The Contractor shall inform personnel of the presence of an active nest and take steps, described above, to avoid disturbing it.
  - 5. Until inspected by the Engineer or Qualified Biologist, a 20-foot-radius protective buffer zone shall be established around the nest of any non-raptor, ground nesting bird, and a 50-foot-radius protective buffer zone around nests established in shrubs, trees, on structures, on Equipment, etc., except for raptor nests. Furthermore, the protective buffer zone shall be 250 feet for nesting raptors (including hawks), owls and burrowing owls, falcons, eagles, herons, and egrets. The Qualified Biologist may recommend, for approval by the Engineer, modification of these zones.

6. Refer to Section 19. Environmental for additional specific buffer zone requirements.

**10.14.05. Exclusion Devices**

- A. The Contractor shall install nesting exclusion devices to prevent potential establishment or occurrence of a nest in the Project area during Project activities. The Contractor shall maintain all nesting exclusions devices, including existing ones, throughout the nesting season or until completion of Work in an area makes the devices unnecessary. The Contractor shall be responsible for the maintenance, repair, or replacement of exclusion devices until all of the Work is complete. The Contractor shall remove and dispose of all exclusion devices, including those installed by the District, when Work in the area is complete.
- B. Bird exclusion devices shall be installed during the non-nesting season (generally September 1 through January 14). The Contractor shall obtain favorable review from the Engineer when installing bird exclusion devices during the nesting season (generally January 15 through August 31). At a minimum, all exclusion devices shall be inspected daily by the Contractor and weekly by the Qualified Biologist to ensure integrity of the devices and to prohibit birds from nesting without causing them harm.

**10.14.06. Nest Prevention**

- A. The Contractor is hereby notified that all areas to be cleared of vegetation may be suitable nesting habitat for migratory birds. The Contractor shall perform all necessary clearing prior to the nesting season if at all possible. If clearing must occur during the nesting season, the Contractor shall obtain prior approval from the Engineer. If vegetation must be cut and maintained to prevent birds from nesting, it must be cut to less than six (6) inches in height and removed.
- B. The Contractor shall inspect and monitor bare areas and gravel areas prior to commencement of the nesting season and as frequently as necessary thereafter and provide deterrence measures if necessary to prevent ground-nesting birds, such as killdeer, from establishing a nest.
- C. Removal of vegetation (trees, shrubs, grasses, and herbaceous plants) shall be limited to areas shown on the Drawings designated for vegetation removal unless approval is obtained from the Engineer to remove vegetation from additional areas. No vegetation shall be trimmed back unnecessarily, including trees and/or shrubs growing near the right of way that overhang onto the worksite. Such overhanging foliage shall be protected and tied back if necessary. Landscaped areas and irrigation systems outside of the construction areas shall be preserved and protected from damage by the Contractor's activities.
- D. Pre-established Vegetation Management Areas: Some areas of vegetation removal, clearing, and eradication may be established and cleared by the District prior to the First Chargeable Day. In these areas, the Contractor shall be responsible for the continued clearing and eradication of all re-sprouts.

**10.14.07. Submittals**

- A. Submit a résumé of qualifications of the Qualified Biologist for the Engineer's favorable review. The Qualified Biologist's qualifications must meet the minimum requirements as specified for the Qualified Biologist listed in Section 19. Environmental. The résumé shall be submitted and must be favorably reviewed by the Engineer prior to any Work.
- B. Submit migratory bird survey reports to the Engineer within two (2) Days upon completion of the survey and at least two (2) Days prior to commencement of Project related activities.
- C. Submit the Qualified Biologists' training materials for favorable review by the Engineer, prior to presenting bird nesting awareness training to personnel.
- D. Submit to the Engineer no later than 15th Day of each month a monthly report prepared and signed by the Qualified Biologist that documents the activities of the Contractor, including, at a minimum, the status of awareness trainings provided, the installation, maintenance, or removal of any bird exclusion devices or protective buffer zones and their locations and monitoring results, and report the current status of previously documented bird nests.
- E. When requested by the Engineer, maintain and submit a log of weekly documentation (including photo-documentation) of the time, date, condition of the nests, and any nest-prevention actions taken during inspections.
- F. Submit to the Engineer product data for nesting exclusion devices, fencing for protective buffer zones, and any shop Drawings as deemed appropriate by the Engineer.
- G. If the Contractor wishes to modify the dimensions of any protective buffer zone or modify any bird exclusion device, a written proposal of such modification must be submitted and favorably reviewed by the Engineer. The submittal must contain the Qualified Biologist's written justification for the proposed modification and shall include a description of the anticipated effects on the active nest and on nesting birds.

**10.15. Other Wildlife and Fish Species**

- A. The Contractor shall comply with all regulatory and permit requirements pertaining to other wildlife and fish species as identified in Section 19. Environmental.

**10.16. Sensitive Plants and Vegetation**

- A. The Contractor shall comply with all regulatory and permit requirements pertaining to sensitive or listed plants and vegetation communities as identified in Section 19. Environmental.

**10.17. Proper Pruning Techniques for Woody Vegetation Removal**

- A. An International Society of Arboriculture (ISA) Certified Arborist or Tree Worker is to be present at all times during pruning. Contractor shall comply with the following:
1. All pruning shall be in accordance with the most current editions of the Best Management Practices for Pruning (International Society of Arboriculture) and the American National Standard for Tree Care Operations (ANSI booklet Z133.1) and Pruning (ANSI booklet A300).
  2. Pruning for clearance: Selectively remove only branches required for passage and movement of construction equipment.
  3. Remove stubbed branches at the point of origin, outside the bark branch ridge.
  4. No more than 25% of live foliage shall be removed from any tree at any one time (or in a given year).
  5. Branch removal or reduction cuts (thinning cuts) are to be employed rather than heading cuts. Trees shall not be topped or headed back.
  6. All cuts shall be distal to the branch bark ridge or, if present, the branch collar. The cuts shall be close to but shall not injure the branch collar. All final cuts shall be in one plane, with no torn bark.
  7. Pruning cuts larger than 4 inches in diameter, except for dead or stubbed branches, shall be avoided.
  8. Pruning operations shall be conducted in a manner that does not damage surrounding understory plants, if present.

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## **SECTION 11. CONTRACT CLOSEOUT**

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### **11.01. Project Completion and Acceptance**

#### **11.01.01. Use Before Acceptance**

- A. The District has the right to utilize or to place into service any item of Equipment or other usable portion of the Work before Acceptance of the entire Project. The District's exercise of said right shall hereinafter be referred to as Use Before Acceptance.
- B. Where Use Before Acceptance is identified in the Contract Documents, it shall be considered part of the Work; no additional compensation or payment shall be made.
- C. Should the District desire Use Before Acceptance that has not been identified in the Contract Documents, the Engineer shall notify the Contractor in writing, identifying the specific portion or portions of the Work proposed for Use Before Acceptance.
- D. The Contractor shall provide written notice within ten (10) Days after a request for Use Before Acceptance by the District stating whether the proposed portions of Work are suitable for Use Before Acceptance and if there are any associated costs, constraints, or other impacts.
- E. Until Use Before Acceptance, the Contractor is responsible for all care and maintenance of all items or portions of the Work.
- F. Unless the Engineer requires the Contractor to execute a Use Before Acceptance Guaranty as provided in Article 11.02.03. Use Before Acceptance Guarantee, upon the District's issuance of written notice of Use Before Acceptance, the District accepts responsibility for the protection and maintenance of all such items or portions of the Work described in the written notice, with the exception of any injury or damage resulting from the Contractor's actions or from negligence.
- G. If, by reason of the District's unidentified Use Before Acceptance, the premium for the Contractor's bodily injury and property damage insurance is increased, the District shall reimburse the Contractor for the additional amount necessarily incurred, allocable to the area and the period of the District's use up to the date of Acceptance of the Work.
- H. The District's Use Before Acceptance does not constitute Acceptance of the Work, or of any portion of the Work, by the District, nor does it relieve the Contractor of responsibility for correcting defective and/or deficient Work or Material found at any time before Acceptance of the Work or during the guarantee period after the District's Acceptance. Notwithstanding any Use Before Acceptance, the Contractor retains full responsibility for fulfilling all of the requirements of the Contract Documents.



**11.01.02. Contractor's Responsibility to Manage Incomplete and Deficient Work**

- A. The Contractor is responsible for identifying and managing incomplete and deficient Work. Incomplete and deficient Work includes, but is not limited to, noncompliance items, rework items, and nonconforming tests; deficiencies relating to inspections by the building official; administrative requirements; and items of Work not complete per the Contract.
- B. The preliminary final and final inspections shall not be conducted until:
  - 1. the entire Work of the Milestone/Project is complete;
  - 2. cleaning has occurred pursuant to Standard Provisions Article 11.04. Final Cleaning and to Special Provisions Article 22.06. Final Cleaning; and
  - 3. deficient Work identified in all outstanding noncompliance notices and/or deficiency lists has been corrected.
- C. For each Milestone Completion, the Contractor must include activities for conducting the preliminary final inspection, completion of deficiency list, and final inspection in the Contractor's Detailed Progress Schedules.
- D. The District may withhold the estimated cost of the incomplete and deficient Work and consequences thereof until it is completed in accordance with the requirements of the Contract Documents.

**11.01.03. Milestone Completion Preliminary Final Inspection**

- A. When the Contractor believes the Work of a Milestone or Project is complete, including final cleaning of the Work area associated with the Milestone, the Contractor shall submit to the Engineer a written certification that the Work of the Milestone is complete and shall request a preliminary final inspection of the work of the Milestone by the District.

- B. Prior to requesting the inspection, the Contractor shall furnish the following Milestone Completion Certification to District:

*"To the best of my knowledge, all Work of Milestone (#) has been completed, inspected, and tested and is in full compliance with the requirements of the Contract."*

Certified by Contractor: \_\_\_\_\_ Date: \_\_\_\_\_  
(Signature)

- C. Within seven (7) Days of receipt of the Contractor's certification that all Work of a Milestone/Project is complete, the Engineer shall conduct a preliminary final inspection with the Contractor.

- D. If the Engineer determines that, based on the results of the preliminary final inspection, the incomplete/deficient Work identified is greater in substance and/or volume than can be appropriately declared on a Deficiency List, then the Work is not complete enough to complete the preliminary final inspection. The Contractor shall be so notified in writing. The Contractor must complete the Work and reinitiate procedures for another preliminary final inspection. Any costs to the District for more than two (2) preliminary inspections may be charged to the Contractor.
- E. If the results of the preliminary final inspection are satisfactory to the Engineer, a Deficiency List shall be prepared and issued to the Contractor. Neither the District's preparation of the Deficiency List, nor any omission from the Deficiency List of items of incomplete and/or deficient Work relieves the Contractor from completing all the Work required by the Contract.

**11.01.04. Milestone Completion Final Inspection**

- A. Prior to requesting the milestone completion final inspection, the Contractor shall furnish the following milestone completion certification to the District:

*"The work of Milestone (#) has been completed, inspected, and tested and is in full compliance with the requirements of the Contract. All Deficiency List items identified during the Preliminary Final Inspection have been completed."*

Certified by Contractor: \_\_\_\_\_ Date: \_\_\_\_\_  
(Signature)

- B. Upon delivery of this certification to the Engineer and if the Engineer agrees with the Contractor's certification, a final inspection shall occur within ten (10) Days of the Contractor's delivery of the milestone completion certification.
- C. If the Engineer determines the Work is deficient, the Contractor shall again be furnished with a Deficiency List identifying the observed deficiencies in the Work. After all deficiencies have been corrected, the Contractor must initiate procedures for another final inspection. If more than two (2) final inspections are required, any costs to the District for additional final inspections may be charged to the Contractor.
- D. After Acceptance of the Contractor's milestone completion certification following the final inspection, the Engineer shall issue a milestone completion letter to the Contractor. This letter will establish the date of the completion of the milestone. The assessment of Liquidated Damages, if applicable, shall cease accruing as of the date of the milestone completion.
- E. The Contractor's Detailed Progress Schedules must include activities for final inspection of milestones.

**11.01.05. Project Completion**

- A. The Contractor shall certify that the entire Work of the Project is complete. Completion of the Project includes submission to and acceptance by the District of all milestone completion submittals. Article 22.05. Submission Closeout Items, describes in greater detail the submittal requirements for Contract Closeout.
- B. Prior to the Engineer issuing the Project completion letter, the Contractor shall furnish the following Project completion certification to the District. This certification is in addition to any intermediate Milestone completion certifications:

*“The entire Work of the Project has been completed, inspected, and tested and is in full compliance with the requirements of the Contract Documents. All Deficiency List items have been completed. All Deficiency List items have been completed. All items on the rework list have been completed. All Closeout Documents required by Article 22.05. Submission of Closeout Items, have been submitted to and accepted by the Engineer.”*

Certified by Contractor: \_\_\_\_\_ Date: \_\_\_\_\_  
(Signature)

- C. The Contractor's certification shall also include the completion of all Deficiency List Work and the correction of all rework.
- D. After acceptance of the Contractor's final certification, the Engineer shall issue a Project completion letter to the Contractor. This letter shall establish the date of the completion of Project. The assessment of Liquidated Damages, if any, shall cease accruing as of the date of Project completion.

**11.01.06. Acceptance of Work**

- A. After issuing the Project Completion letter, the Engineer shall recommend that the District Board of Directors formally accept the Work.
- B. Acceptance of Work shall be made by the District Board of Directors and only after the Engineer has recommended acceptance.
- C. After the Board of Director's formal Acceptance of Work, the Clerk of the Board shall record a Notice of Completion of Contract and Acceptance of Work.
- D. The District's Acceptance of Work establishes conformity with the Contract except for Delays in completion, latent defects, fraud, or such gross errors as amount to fraud, willful misconduct, or gross negligence, and are subject to any guarantee and warranty, express or implied. Determinations by the Engineer that the Work is complete or Acceptance of Work by the Board of Directors does not bar any action by the District against the Contractor pursuant to Article 11.02. Guarantee and Guaranty Bond.

**11.02. Guarantee and Guaranty Bond****11.02.01. Guarantee**

- A. The guarantee period for any item of Equipment or usable portion of the Work that the District utilizes or places into service shall commence on the date of the Notice of Completion of Contract and Acceptance of Work.
- B. The Contractor hereby agrees to make, at its own expense, all repairs or replacements necessitated by defects in Material or workmanship supplied or constructed under the terms of this Contract and to pay for any damage to other Work resulting from such defects that becomes evident within a minimum of three (3) years after the date of Notice of Completion of Contract and Acceptance of Work or within such period of time as may be prescribed by law. The Contractor further assumes responsibility for a similar guarantee for all Work and Materials provided by Subcontractors or by manufacturers of packaged Equipment components. The Contractor also agrees to indemnify, defend, and hold the District harmless from liability of any kind arising from damage due to said defects.
- C. The Contractor-furnished Guarantee and Guaranty Bond specified herein shall be in addition to any Equipment, workmanship or Material warranties specified elsewhere in the Contract or as provided by the manufacturer. The Contractor shall provide copies of all warranties required of the Specifications in addition to the Guarantee and Guaranty Bond.
- D. The Contractor shall execute and submit to the Engineer a completed guaranty form for the Work in the format provided below.
- E. The Contractor shall, upon receipt of notice in writing from the District, promptly make all repairs arising out of defective Materials, workmanship, or Equipment. If the Contractor has failed to make the repairs with due diligence within ten (10) Days after giving this notice to the Contractor, the District is hereby authorized to make such repairs. In case of emergency, where, in the opinion of the District, Delay could cause serious loss or damage, repairs may be made without notice sent to the Contractor. The Contractor and its Surety shall be liable for any expense in connection with repairs performed by the District or by its agents.
- F. Prior to the expiration of the guaranty period, the District reserves the right to hold a meeting and require the attendance of the Contractor and relevant Subcontractors and Suppliers at no cost to the District. The purpose of the meeting is to review guaranties, bonds, and maintenance requirements and to determine the required repair or replacement of defective items.
- G. For the purpose of this Article, Acceptance of the Work or a portion of the Work by the District shall not extinguish any covenant or Agreement on the part of the Contractor to be performed or fulfilled under this Contract that has not, in fact, been performed or fulfilled at the time of such acceptance. All covenants and

agreements shall continue to be binding on the Contractor until they have been fulfilled.

**11.02.02. Guaranty Bond**

- A. The Contractor shall furnish a written guaranty bond in the format provided below prior to issuance of the Project Completion letter. The guaranty bond shall be executed by both the Contractor and the surety (who must be an admitted surety in accordance with California Code of Civil Procedure Section 995.670). This guaranty bond shall be for a period of three (3) years after the date of Notice of Completion of Contract and Acceptance of Work and shall cover all Work.
- B. The amount of the guaranty bond shall be no less than 15 percent of the total Contract Price(s).

**SANTA CLARA VALLEY WATER DISTRICT****GUARANTY FORM****Guarantee for****(Project Name and Project Number)****City, State**

We hereby guarantee the Project commonly known as \_\_\_\_\_ has been completed in accordance with the requirements of the Contract Documents and further agree that the Work to be free of defects in workmanship, Materials, and Equipment and to remain free of such defects for a period of three (3) years from the date of Acceptance of Work by the District's Board of Directors.

We agree that if any defects in Materials, workmanship, or Equipment become evident, we shall, within ten (10) Days after written notice of such defects, commence to repair or replace the same together with any other Work that may be damaged or displaced in so doing.

In the event of our failure to comply with the above-mentioned conditions within a reasonable time after being notified, or should the emergencies of the case require repairs or replacements to be made before we can be notified or respond to notification, we do hereby authorize the Santa Clara Valley Water District to proceed to have the defect repaired and made good at our expense; we shall pay the cost therefor upon demand.

The Guaranty provided herein shall not be in lieu of, but shall be in addition to, any warranties or other obligations otherwise imposed by the Contract Documents and by law.

Contractor: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**SANTA CLARA VALLEY WATER DISTRICT  
GUARANTY BOND**

BE IT KNOWN BY THESE PRESENTS: That

WHEREAS, the Santa Clara Valley Water District, State of California, has awarded to \_\_\_\_\_ (hereinafter designated as "Principal") a Contract for \_\_\_\_\_; and

WHEREAS, said Principal is required under the terms of said Contract to furnish a Guaranty Bond for the faithful performance of said Contract's Guaranty.

NOW, THEREFORE, we, the Principal and

\_\_\_\_\_ as Surety, are held and firmly bound unto the Santa Clara Valley Water District (hereinafter called "District") in the sum of

Dollars (\$ \_\_\_\_\_) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the above Principal, or heirs, executors, administrators, successors, or assigns shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the said Contract and any alteration thereof made as therein provided, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the District, its officers, agents, and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

And the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract or to the Work to be performed thereunder or to the Specifications accompanying the same shall in any way affect its obligation on this bond, and does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the Work or to the Specifications.

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

IN WITNESS WHEREOF two identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the \_\_\_\_\_ Day of \_\_\_\_\_, 2\_\_\_\_\_.

_____ (Seal)	_____ (Seal)
_____ (Seal)	_____ (Seal)
_____ (Seal)	_____ (Seal)
<i>Principal</i>	<i>Surety</i>

Address: \_\_\_\_\_  
\_\_\_\_\_

NOTE: Signature of those executing for Surety must be properly acknowledged.

**11.02.03. Use Before Acceptance Guarantee**

- A. For Equipment or components of Equipment or other usable portions of the Work utilized or placed into service for the District's benefit during the progress of the Work and prior to Acceptance of Work, the Contractor shall submit the guarantee/warranty certificate below on the Contractor's letterhead.

(Contractor's Letterhead)

USE BEFORE ACCEPTANCE GUARANTY

FOR

EQUIPMENT OR OTHER USABLE PORTION OF THE WORK INSTALLED BY  
CONTRACTOR

AND

USED BY DISTRICT BEFORE ACCEPTANCE OF WORK

We (Name of Contractor), agree to maintain and repair as recommended by the manufacturer the following described Equipment (system) or other usable portion of the Work that has been utilized or placed into service by the personnel of the District prior to Acceptance of Work. The Guaranty provided herein shall not be in lieu of, but shall be in addition to, any warranties, performance bond, payment bond, or other obligations otherwise imposed by the Contract Documents and by law.

Owner: Santa Clara Valley Water District

Description of Equipment or other portion of the Work: \_\_\_\_\_ (Include manufacturer name, model number, serial number, and such other information as needed to positively identify the Equipment/system or portion of Work.)

Location of Equipment: \_\_\_\_\_

Installed under: (Contract Number and Contract Title)

Date Installed: \_\_\_\_\_

Date of first utilization or placement into service by the District: \_\_\_\_\_

This guaranty/warranty is effective upon date shown herein under, and shall remain effective until the District's Acceptance of Work.

Name of Contractor: \_\_\_\_\_

By: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

License No. \_\_\_\_\_

Date: \_\_\_\_\_



**11.03. Submission of Closeout Items****11.03.01. As-Built Drawings**

- A. At completion of construction and prior to issuance of the Project Completion letter by the District, the Contractor shall deliver the following documents to the Engineer in the following form:
  - 1. One original set of As-Built Drawings.
  - 2. Field Test Records (two [2] copies): Unless required to be submitted elsewhere in the Specifications, field test records shall be submitted as a closeout item bound into three ring vinyl binders with clear plastic spine label pockets with all pages numbered. A complete, neat, word processed table of contents for each binder with page numbers for each entry must be provided.
  - 3. Field survey record documentation.
- B. Accompany the closeout document submittal with a transmittal letter in duplicate containing the following:
  - 1. Date.
  - 2. Santa Clara Valley Water District Project name and Project number.
  - 3. Contractor's name and address.
  - 4. Title and number of each document.
  - 5. Certification that each document as submitted is complete and accurate.
  - 6. Signature of Contractor.

**11.03.02. Closeout Documents**

- A. At completion of construction and prior to the issuance of the Project Completion Letter by the District, the Contractor shall deliver the following closeout documents to the Engineer:
  - 1. Evidence of compliance with and approval of Contractor obtained permits and associated inspections of authorities issuing the permits.
  - 2. Copies of all special guarantees, warranties, and bonds.
  - 3. Evidence of release of all liens and stop-payment notices.
  - 4. Release of Claims in accordance with Article 6.03. Final Payment.

5. Records indicating the District's receipt and acceptance of all tools, spare parts, and extra Material as specified in these Specifications.
6. Records indicating the District's receipt and acceptance of all O&M manuals as specified in these Specifications.
7. Any and all administrative paperwork required for closeout.

**11.03.03. Keys**

- A. The Contractor shall turn over all keys to new and existing facilities to the Engineer. This includes keys that were loaned (if any) to Contractor staff by the District for use during the construction period. The Contractor shall provide a written description or schedule describing which keys correspond to which doors, gates, or other feature.

**11.04. Final Cleaning****11.04.01. Scope and Schedule for Final Cleaning**

- A. Final cleaning is separate Work from cleaning done throughout the Project to maintain the Project site in a safe and presentable condition. Final cleaning shall be a comprehensive cleanup of all new and existing facilities affected by the Work prior to and finished within 30 Days of the District's approval for continuous use and occupancy. Final cleaning may be performed separately by structure or area at different time periods only if approved by the Engineer.
- B. Completion of this Work shall be planned and scheduled to accommodate the operational requirements of this District facility.

**11.04.02. Final Cleanup**

- A. Before final inspection, the Contractor shall clean the premises and, unless otherwise specified, remove from the worksite and areas adjacent to the worksite, all building Material, rubbish, debris, unused Material, concrete forms, falsework, temporary structures, and other Material and Equipment used during the construction. All parts of the Work shall be left in a neat and presentable condition to the satisfaction of the Engineer.

**11.04.03. Structures**

- A. Structures shall have the interiors and exterior surfaces cleaned by a professional industrial janitorial service fully knowledgeable in proper and effective cleaning methods.
- B. The structures shall be thoroughly cleaned and shall include, but shall not be limited to, the following cleaning activities:
  1. Paint, glazing compounds, and other Material shall be removed from glazing and skylights. Glazing and skylights shall be washed and

polished on both sides. Care shall be exercised so that the glazing is not scratched or damaged.

2. Interior surfaces, including walls, ceilings, light fixtures, doors, jambs, sills, piping, ducts, Equipment, electrical panels and conduits, handrails, guardrails, gratings, pipe trenches, drains, and miscellaneous fixtures shall be cleaned. Stains, spots, dirt, and dust shall be removed.
  3. Temporary floor protections shall be removed; floors shall be vacuumed and washed; floors other than concrete shall be waxed and buffed.
  4. Door and window hardware shall be cleaned and polished after all traces of stains, dirt, paints, and blemishes are removed.
  5. Casework and plastic laminate surfaces shall be cleaned and polished.
  6. Marks, stains, fingerprints, soil, and blemishes shall be removed from painted, decorated, or stained interior surfaces.
  7. Spots, soil, paint, grout, plaster, concrete, and similar substances shall be removed from tile and the tile shall be washed.
  8. Exterior walls, doors, and louvers shall be washed.
  9. All interior and exterior signage shall be cleaned.
- C. All concrete decks and floors shall be swept and washed. Stains, including oil stains, metal rust, and weld splatter shall be removed. Spills of construction Materials, including paint, concrete, grout, adhesives, insulating Materials, chemicals, and similar Materials shall be removed and the underlying surfaces cleaned.

#### **11.04.04. Streets, Roadways, Concrete Slabs, Sidewalks, and Paved Areas**

- A. Streets, roadways, concrete slabs, sidewalks, and paved areas shall be cleaned and pressure washed so that they are free of debris, soil, and paint or construction Material spills. Painted construction markings on concrete and pavement shall be removed.
- B. All access roads and maintenance roads shall be graded, removing wheel tracks and smoothing up such roads, and restored to their specified condition, or if none specified, to the condition then existing prior to the start of construction.

#### **11.04.05. Storm Drainage Facilities**

- A. All gutters, V ditches, swales, storm drain pipe inlets, catch basins, drop inlets, and manholes shall be cleaned of soil, vegetation, and debris.

**11.04.06. Unpaved Areas**

- A. Unpaved areas between new facilities and between new and existing facilities shall be cleaned of all debris and construction Material. These areas shall be graded or raked to a smooth uniform surface without leaving holes, depressions, or tire tracks.

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## **SPECIAL PROVISIONS**

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## SECTION 12. WORK AND CONTRACT TIME(S)

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### 12.01. Summary of Work

- A. The Work to be completed under this Contract shall consist of furnishing all tools, equipment, materials, supplies, and manufactured articles, and all labor, transportation and services, including fuel, power, water, and essential communications, and for performing Work or other operations required to construct the Project. Any quantities provided with Article 12.01. Summary of Work are approximate. Should there be a discrepancy between the quantities included herein and elsewhere in the Contract documents, those quantities specified elsewhere on the Contract shall govern.
- B. The Work to be completed under this Contract includes, but is not limited to, the following:
  - 1. Demolish, remove, and dispose of approximately 900 LF of existing 12-inch stainless steel air wash pipe.
  - 2. Furnish, install and test all materials needed for the installation of new 12-inch stainless steel air wash pipe and associated appurtenances.
  - 3. Clean, reline, video inspect, and disinfect approximately 670 LF of existing 12-inch stainless steel air wash pipe.
  - 4. Restore all impacted work sites to a condition equal to or better than that existing prior to construction.

### 12.02. Drawings

- A. The Drawings, entitled "Map and Construction Plan for Santa Teresa Water Treatment Plant Air Wash Line Replacement" accompany these Specifications and are part thereof.

### 12.03. Contract Time(s)

- A. The Contractor shall complete all Work required under this Contract before the expiration of 504 Days from the first chargeable Day of the Contract. The first chargeable Day of the Contract shall be defined in the NTP issued by the District.
- B. No extension of time shall be given because of rain, or because of results of rain, except set forth in these Specifications.
- C. Work shall include the following Milestones:
  - 1. **Milestone 1** – Completion of all work required in the West Filter Gallery, West Filters, and West Yard Piping.
  - 2. **Milestone 2** – Completion of all work required in the East Filter Gallery, East Filters, and East Yard Piping.



- D. Milestone Completion
  - 1. The Contractor shall complete Milestone 1 before March 31, 2021.
  - 2. The Contractor shall complete Milestone 2 before December 31, 2021.
- E. See Special Provisions Article 12.05. Liquidated Damages regarding assessments.
- F. Onsite work shall not be allowed between April 1, 2021, through September 30, 2021.

**12.04. Inclement Weather**

- A. The time allowance for completion of Work is based upon the inclusion of 6 Days for inclement weather, which, pursuant to Standard Provisions Article 3.08.02. Inclement Weather may be excusable.
- B. The Contractor shall comply with Standard Provisions Article 3.08.02. Inclement Weather.

**12.05. Liquidated Damages**

- A. In accordance with Standard Provisions Article 5.07. Liquidated Damages, the District may assess as Liquidated Damages the following amounts:
  - 1. **\$200 per day** for failure to submit the Preliminary Schedule of Work, Detailed Schedule of Work, Schedule Updates, and Master Submittal List within the time limits allowed.
  - 2. **\$1,300 per hour** for failing to complete Milestone 1.
  - 3. **\$1,300 per hour between November 01, 2020, and March 31, 2021**, for any unscheduled facility or plant system shutdown due to action(s) by the Contractor.
  - 4. **\$1,300 per hour** for failing to complete Milestone 2.
  - 5. **\$1,300 per hour between October 15, 2021, and December 31, 2021**, in excess of the time allowed for a scheduled or for any unscheduled plant shutdown due to action(s) by the Contractor.
  - 6. **\$3,700 per hour** in excess of the time allowed for a scheduled or for any unscheduled full plant shutdown due to action(s) by the Contractor.
  - 7. **\$500** for each truck operated by the Contractor, subcontractors and suppliers for arriving, idling, or queuing at the plant entrance between 5 p.m. and 8:30 a.m.

**12.06. Bonus**

- A. No Special Requirements.

**12.07. Changes**

- A. No Special Requirements.

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## **SECTION 13. GENERAL REQUIREMENTS**

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### **13.01. Abbreviations and Acronyms**

- A. In addition to the abbreviations provided under Section 1 of the Standard Provisions, the following abbreviations and acronyms shall apply for this Project:

STWTP	Santa Teresa Water Treatment Plant
AW	Air Wash
ADDL	Additional

### **13.02. Definition of Key Terms**

- A. Operational Facility Shutdown: The period of time when the normal, intended use of the facility cannot take place or when the facility is operating at less than its normal, intended production capability.
- B. Unscheduled Operational Facility Shutdown: Operational Facility Shutdowns initiated by or due to action by the Contractor that are beyond that anticipated or allowed in the Contract. Causes of unscheduled shutdowns could include, but are not limited to, actions causing a power outage; contaminating water such that State water quality regulations are violated or are in imminent danger of violation; and impeding chemical feed systems, water quality monitoring, or process operations.
- C. Operational: To be considered Operational, a facility or facility component must be functional in all manners intended for its use at its rated capacity and through its entire operation range. Operational facilities may require transmission facilities, storage facilities, process facilities, and support systems (e.g., chemicals, water, power, communication) to be fully functional and accessible. For a new facility to be considered operational, it must be installed and tested and District personnel must have received specified training by the Contractor in the facility's operation and maintenance.
- D. Continuous Operation: A completed system operating continuously, 24 hours a Day, without interruption, and without the need for intervention other than normal Operational adjustments by the District's operating personnel.

### **13.03. Site Investigation**

- A. The Contractor shall not be entitled to any adjustment in the Contract Price(s) or in Contract Time(s) if the existence of the condition that caused the alleged impact:
1. Could have been reasonably discovered or revealed as a result of examination, investigation, exploration, test, or study of the site and of contiguous areas required by the Contract Documents to be conducted by or for the Contractor prior to commencing the Work; or

2. Could have been inferred from the presence of other visible features, such as boulders, buildings, meters, and junction boxes on or adjacent to the site.

**13.04. District-Furnished Reports****13.04.01. Geotechnical Reports**

- A. No Special Requirements.

**13.04.02. Environmental Report**

- A. No Special Requirements.

**13.04.03. Hazardous Material Investigation Report**

- A. No Special Requirements.

**13.04.04. Cultural Resources Report**

- A. No Special Requirements.

**13.04.05. As-Built Documents**

- A. The as-built or record documents referenced represent the District's knowledge of the existing facilities relevant to the planned Work areas for the Project. The as-built or record documents are for reference only; the District does not guarantee their completeness or correctness. The District makes no representation, either expressed or implied, that the conditions indicated in the Drawings, documents, or records are representative of those existing at the Site, or that different conditions may not occur or Material other than that indicated or in proportions different from those indicated may not be encountered.
- B. The following as-built Drawings are available for review:
  1. "Project Facilities Plan and Key Map for Santa Teresa Project," dated February 1986.
  2. "Map and Construction Plan for the Water Treatment Improvement Project Stage 2 at the Santa Teresa Water Treatment Plant," dated January 2007.
  3. "Fluoridation at Water Treatment Plants Project," dated November 2015.
  4. "Incompatible Materials Stage-II Project," February 2013.
- C. Requirements for the Contractor to field-verify existing conditions are as specified in the Contract Documents.

- D. Other subsequent, undocumented improvements may also be present and would not be reflected in the as-built or record documents. Contractor's overall understanding shall be based on the Drawings and on a reasonable understanding of the facilities from a general field inspection.
- E. CAD files of the Drawings and Specifications will not be provided to the Contractor. The Contractor may request PDF copies of Drawings. If the Contractor uses the Drawings for any other purpose except as-builts for the Project, all title block information and authors of the Drawings shall be removed.

**13.05. Contractor's Engineering and Design**

- A. The Contractor shall provide engineering and design of the following Work components:
  - 1. Air Testing Plans.
  - 2. Pipe support hangers and other structures or items as specified herein or as indicated on the Drawings.
- B. See Technical Provisions for additional information.

**13.05.01. Seismic Design Criteria**

- A. Non-structural components to be furnished under this Contract shall be designed, constructed, and installed in accordance with the design criteria listed below.
- B. General Design Criteria
  - 1. CBC 2019 California Building Code 2019
  - 2. ASCE 7-10 Minimum Design Loads for Buildings and Other Structures
  - 3. ACI 318 Building Code Requirements for Structural Concrete
  - 4. AWS D1.1, D1.3 and D1.4, Structural Welding Code
- C. Seismic Design Criteria
  - 1. For Non-Structural Components (architectural, mechanical, and electrical items permanently attached to and supported by a structure)
    - a. Design Spectral Response Acceleration for Short Period:  $SDS =$  (See information provided on S-1)
    - b. Component Importance Factor:  $I_p = 1.0$
    - c. Seismic Design Category: D

- D. Design in accordance with the current edition of the California Building Code (CBC) or with applicable, site-specific seismic criteria herein, whichever is more stringent.

**13.05.02. Wind Design Criteria**

- A. No Special Requirements.

**13.05.03. Hydraulic Design Criteria**

- A. No Special Requirements.

**13.05.04. Truck Loading**

- A. No Special Requirements.

## **SECTION 14. SPECIAL REQUIREMENTS**

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### **14.01. Engineer**

- A. The Engineer is the Deputy Operating Officer of the Water Utility Capital Division.

### **14.02. Project Signs**

- A. No Special Requirements.

#### **14.02.01. Payment**

- A. Full compensation for doing all Work necessary to pick up and install the District furnished signs shall be included in the lump sum price Bid for mobilization.

### **14.03. Office Facilities**

- A. Office facilities, furnishings, and/or Equipment specified in this Special Provisions Article 14.03 shall be furnished, installed, and in operating condition prior to performing any other Contract Work under the Contract.

#### **14.03.01. Engineer's Office**

- A. No Special Requirements.

#### **14.03.02. Contractor's Office**

- A. The Contractor shall provide and maintain at the project site a suitable trailer office for Contractor's use. Location of Contractor and sub-contractor office trailers shall be at one of the Contractor's staging area shown on the Drawings and shall be as approved by the Engineer. At this office shall be kept project copies of the Contract Documents, project progress records, project schedule, submittals, and other relevant documents which shall be accessible to the Engineer, representatives of the District's Construction Management and other District representatives during normal working hours.

#### **14.03.03. Removal and Disposal**

- A. Office facilities, furnishings, and/or Equipment specified in this Special Provisions Article 14.03. Office Facilities shall be furnished, installed, and in operating condition prior to performing any other Contract Work under the Contract.
- B. Prior to issuance of the Project Completion letter by the District, the Contractor shall remove and dispose of its temporary facilities, Material, and Equipment and restore the site to its original or better condition.

#### **14.03.04. Payment**

- A. Full compensation for doing all Work necessary to provide office facilities, including operating and maintenance costs as specified herein, shall be included in the lump sum price Bid for mobilization.



**14.04. Use of District Facilities**

- B. The Contractor's employees shall not use District restrooms, offices, lunchrooms, parking spaces, Work rooms, or similar facilities.
- C. The Contractor shall not be allowed to use any other District Equipment in the facility, including cranes, forklifts, and manlifts.

**14.05. Temporary Utilities**

- A. Temporary Electrical Power: All electrical power for the Contractor's construction operations, offices, storage spaces, lighting, testing, heating, cooling, ventilating, and security and to support other temporary utilities and facilities described herein shall be provided and paid for by the Contractor. The Contractor shall arrange with the Local electrical utility, at no additional cost to the District, the provision and removal of adequate, temporary electrical service and/or the provision of a temporary electrical generator. The location of the temporary electrical service Equipment will be subject to the approval of the Engineer.
- B. Temporary Lighting: The Contractor shall provide temporary lighting in all Work areas sufficient to maintain a lighting level during working hours not less than the lighting level required by California OSHA standards. As permanent lighting facilities are completed, these may be used in lieu of temporary facilities, provided, however, that bulbs, lamps, or tubes of such facilities used by the Contractor are replaced immediately prior to final Acceptance of the work. All temporary exterior lighting shall be shielded and directed downward and toward the interior of the Work site to minimize its effects on neighbors.
- C. Temporary Heating, Cooling, and Ventilation: The Contractor shall provide means for heating, cooling, and ventilating all Work areas as may be required to protect the Work from damage by freezing, high temperatures, and weather or to provide a safe environment for workers. Unvented, direct-fired heaters shall not be used in areas where freshly placed concrete will be exposed to the combustion gases until at least two (2) hours after the concrete has attained its initial set.
- D. Temporary Water: The Contractor shall furnish potable water for human consumption and non-potable water for use during construction.
- E. Temporary Sanitary Facilities: Sanitary facilities for the Contractor and all Subcontractors shall be provided by the Contractor. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view wherever possible. At least one (1) toilet shall be provided for every 20 workers.
- F. Solid and Liquid Waste Disposal: The Contractor shall provide a sufficient number of waste receptacles, dumpsters, and bins to contain all solid and liquid waste generated from construction operations. Waste receptacles shall be emptied weekly at a minimum and more frequently when full.

- G. Temporary Fire Protection: The Contractor shall provide portable, UL-rated, 20#, Class-A fire extinguishers at temporary Contractor, Engineer, and similar office spaces. In all other areas of construction operations, provide UL-rated, 20# or larger, Class-ABC, dry-chemical extinguishers or a combination of NFPA-recommended classes for the exposure. Comply with NFPA 10 and 241 for classification, extinguishing agent, and size required by location and class of fire exposure. Comply with the Uniform Fire Code and Cal/OSHA regulations for the number of fire extinguishers.
- H. Temporary Propane Service: If required for construction operations and temporary facilities, the Contractor shall arrange with a Local propane vendor, at the Contractor's own cost, to provide adequate, temporary propane service. The Contractor shall also obtain and pay for all required permits and fees from authorities having jurisdiction. The Contractor shall pay all charges from the utility or vendor, including charges associated with the removal of the service at the end of the Work. The location of the temporary propane service Equipment shall be mutually agreeable to the Contractor and to the Engineer.
- I. Temporary Compressed Air: The Contractor shall provide compressors for compressed air for construction operations as required. Use of existing or new plant air compressor systems for construction operations is prohibited.

**14.05.01. Payment**

- A. Full compensation for doing all Work necessary to provide temporary utilities shall be included in the lump sum price Bid for mobilization.

**14.06. Staging Area**

- A. Staging areas that are not already paved or covered with compacted aggregate base and that are used for parking vehicles and trailers; or for workshops, maintenance areas, Equipment, piping, formwork, rebar; or for storing masonry on pallets and metal product storage shall be graded, as required, and surfaced with a minimum of three (3) inches of compacted, aggregate-base rock over a high-modulus, woven, soil-separation geotextile. Areas storing aggregate base or other rock products shall also be placed on this same geotextile. The objective is to maintain separation between native and construction Material. Areas storing soils and sand are not required to be surfaced with aggregate-base course.
- B. Aggregate base shall be removed from all staging areas prior to Project Completion; surfaces shall be regraded to their original grades or to matching surrounding conditions as directed by the Engineer.
- C. Any soils contaminated with petroleum product or other Hazardous Material by the Contractor shall be removed by the Contractor and disposed of in accordance with Federal, State, and Local laws.

- D. The Contractor is responsible for weed control in and immediately around the staging and material storage areas.
- E. The District may require installation of temporary posts, marks, or barricades. Staging areas are subject to inspection by District staff.

**14.06.01. Payment**

- A. Full compensation for doing all Work necessary to provide staging areas as specified herein shall be included in the lump sum price Bid for mobilization.

**14.07. District-Furnished Material and Equipment**

- A. No Special Requirements.

**14.07.01. Assignment of Contract for District-Procured Material**

- A. No Special Requirements.

**14.08. Salvaged Material and Equipment**

- A. Non-salvaged materials removed and/or demolished in the course of the Contractor's operation shall become the property of the Contractor and shall be properly disposed of by the Contractor at no additional cost to the District.
- B. The Contractor shall salvage and protect the existing 12 Butterfly Valves and actuators, reinstall as shown on the drawings, and be responsible for installation and maintaining the full remote control functionality.

**14.09. Tools and Spare Parts**

- A. No Special Requirements.

**14.10. Operation and Maintenance Documents**

- A. No Special Requirements.

**14.10.01. Scope of Work**

- A. No Special Requirements.

**14.10.02. Submittal Schedule**

- A. No Special Requirements.

**14.10.03. Document Contents**

- A. No Special Requirements.

**14.10.04. Document Format**

- A. No Special Requirements.

**14.10.05. Equipment, Products, and Systems Requiring O&M Documents**

- A. No Special Requirements.

**14.10.06. Payment**

- A. No Special Requirements.

**14.11. Maintenance of Record Documents**

- A. The Contractor shall maintain at the site the following record documents:
  - 1. As-Built Drawings (full size).
  - 2. Specifications and Addenda.
  - 3. Favorably reviewed submittals, including shop Drawings, product data, samples, calculations, and other submittals.
  - 4. PCOs, Change Orders, DCOs, field orders, and other Contract modifications.
  - 5. Field and shop testing records.
  - 6. Survey records.
  - 7. Correspondence.
- B. The Contractor shall provide files and racks for orderly storage of the documents; maintain the documents in clean, dry, legible condition, and make all documents and samples available during regular business hours for inspection and reproduction by the Engineer.
- C. The Contractor shall keep the record documents current with construction in progress. Completed construction Work shall not be permanently concealed until required information has been recorded on the As-Built Drawings.

**14.11.01. As-Built Drawings**

- A. The Contractor is required to keep on-site and available for inspection at any time an accurately marked, legible, up-to-date set of Contract Drawings (as-built Drawings) for the Work installed. The Contractor shall record as the Work progresses changes to the original Contract Drawings, including, but not limited to, the following items:

1. Field changes or adjustments in the final location or in the final dimensions or details of the Work.
  2. Changes resulting from RFIs, Change Orders, DCOs, and other Contract modifications.
  3. Locations of underground and above-ground utilities and appurtenances referenced to permanent, accessible features of the Work.
  4. Details not included in the original Contract Drawings but incorporated into the Work, referenced to approved shop Drawings, product data, samples, calculations, or other submittals.
  5. Location of items embedded or concealed from view (e.g., conduits, cables, junction boxes, piping, etc.).
- B. Changes shall be clearly described on the Drawings by note as required.
- C. All entries shall be dated, calling attention to the entry by a “cloud” drawn around the area or areas affected.
- D. The as-built Drawings shall be kept in a safe place and protected from damage by weather and manhandling. As-built Drawings shall be stored apart from documents used for performing the Work and shall be kept in a dry, legible condition and in good order. Do not use as-built Drawings for construction at the job site.
- E. Changed Work or conditions of the Work covered up or concealed by the Contractor in advance of recordation on the as-built Drawings shall be uncovered to allow accurate recordation of the change then re-covered all at the Contractor’s expense.
- F. Changes shall be marked directly on the Contract Drawings in accordance with instructions provided in Appendix B. If there is insufficient space on a Drawing to mark up the change, the Contractor shall draw additional sketches to completely show the change and shall attach the sketches to the Drawing.
- G. The Engineer has the right to review the Contractor’s as-built Drawings at any time to ascertain that they are being kept up to date and that they show sufficient detail. Should the Contractor’s as-built Drawings not be up to date or should they lack necessary detail per the as-built guidelines, the Engineer may withhold five (5) percent from each monthly progress payment until the Drawings are deemed acceptable by the Engineer. Such review by the Engineer shall not relieve the Contractor of its responsibility for keeping the as-built Drawings current and complete.
- H. The construction as-built Drawings shall be stamped “As-Built” and shall be, at completion of construction, signed and dated by the Contractor and submitted as required in Article 11.03.01. As-Built Drawings.

**14.12. Emergency Work**

- A. The Contractor shall have personnel available on call for emergency Work connected with those improvements, tie-ins, and modifications being completed as part of this Work. Contractor on-call personnel shall be able to be on-site within two (2) hours of verbal notice, 24 hours a day, seven (7) days a week. Telephone numbers for these individuals shall be provided to the Engineer and shall be kept current.

**14.13. Dispute Review Board**

- A. A Dispute Review Board (DRB) process is not required.

**14.13.01. Payment**

- A. No Specific Requirements.

**14.14. Escrow Bid Documents**

- A. Escrow Bid Documents are not required.

**14.15. Partnering**

- A. Professionally Facilitated Project Partnering (PFPP) is not required but may be requested by the Contractor. The Contractor's attention is directed to Standard Provisions Article 3.15.02. Professionally Facilitated Project Partnering.

**14.15.01. Payment**

- A. No Specific Requirements.

**14.16. Insurance**

- A. Without limiting the Contractor's indemnification of, or liability to, the District, the Contractor must provide and maintain at its own expense during the term of this Contract or as may be further required herein the following insurance coverages and provisions.
  - 1. The Contractor must provide its insurance broker(s)/agent(s) with a copy of these requirements and warrants that these requirements have been reviewed by the Contractor's insurance agent(s) and/or broker(s) who have been instructed by the Contractor to procure the insurance coverage required herein.
  - 2. In addition to certificates, the Contractor must furnish the District with copies of original endorsements affecting coverage required herein. The certificates and endorsements shall be signed by a person authorized by the insurer to bind coverage on its behalf. All endorsements and certificates are to be received and approved by the District before the Contract commences. In the event of a Claim or dispute, the District has

the right to require the Contractor's insurer to provide complete, certified copies of all required, and pertinent insurance policies, including endorsements affecting the coverages required herein.

- B. The Contractor must, at its sole cost and expense, procure and maintain during the entire period of this Contract through Acceptance of the Work by the District's Board of Directors the following insurance coverage(s).

**14.16.01. Required Coverages**

- A. Commercial general/business liability insurance with coverage as indicated.
1. **\$5,000,000** per occurrence/**\$5,000,000** aggregate limits for bodily injury and property damage.
  2. **\$5,000,000** products/completed operations aggregate to be maintained for at least three (3) years following acceptance of the Work by the District.
  3. General liability insurance must include the following:
    - a. Coverage at least as broad as found in standard ISO Form CG 00 01.
    - b. Premises and operations.
    - c. Contractual liability expressly including liability assumed under this Contract.
    - d. If the Consultant shall be working within 50 feet of a railroad or light rail operation, any exclusion as to performance of operations within the vicinity of any railroad bridge, trestle, track, roadbed, tunnel, overpass, underpass, or crossway must be deleted or a railroad protective policy in the above amounts provided.
    - e. Owners and contractors' protective liability.
    - f. Severability of interest.
    - g. Explosion, collapse, and underground hazards, (X,C, and U).
    - h. Broad form property damage liability.
    - i. If the standard ISO form wording for "Other Insurance" or other comparable wording is not contained in the Consultant's liability insurance policy, an endorsement must be provided that states the insurance will be the primary insurance and that any insurance or self-insurance maintained by the District, its Directors, officers, employees, agents, or volunteers will be in excess of the Consultant's insurance and will not contribute to it.

- B. Business auto liability insurance with coverage as indicated.
  - 1. **\$2,000,000** combined single limit for bodily injury and property damage per occurrence, covering all owned, non-owned, and hired vehicles.
- C. Builders' risk (course of construction) insurance.
  - 1. Covering all risks of loss less policy exclusions for an amount equal to the completed value of the Project with no coinsurance penalty provisions. Builder's Risk policy shall name Santa Clara Valley Water District as the loss payee.
- D. Workers' compensation and employer's liability insurance.
  - 1. Statutory California workers' compensation coverage covering all Work to be performed for the District.
  - 2. Employer liability coverage for not less than **\$1,000,000** per occurrence.
- E. Surety bonds
  - 1. The Contractor shall provide the following surety bonds:
    - a. A Bid bond as specified in the Notice to Bidders.
    - b. A performance bond as required by the Notice to Bidders
    - c. A payment bond as required by the Notice to Bidders.
- F. Environmental Pollution Liability: In the event that Hazardous, contaminated Material is discovered during the course of the Work and the Contractor or its Subcontractor is required to perform abatement or disposal of such Material, then the Contractor or its Subcontractor who performs abatement of Hazardous or contaminated Material removal shall maintain in force, throughout the term of this Contract, the Contractor's pollution liability insurance with limits not less than \$1,000,000 for each occurrence combined single limit (true occurrence form), including coverages for on-site or off-site third-party claims for bodily injury and property damage.

**14.16.02. General Requirements**

- A. Additional Insured Endorsement(s): The Contractor must provide an additional insured endorsement for commercial general/business liability and business automobile liability coverage naming the Santa Clara Valley Water District, its Directors, officers, employees, and agents, individually and collectively, as additional insured and must provide coverage for acts, omissions, etc. arising out of the named insureds' activities and Work. The following shall also be added to the additional insured endorsement:



1. Santa Clara Valley Water District, its Board members, employees and representatives.
- B. Primacy Clause: The Contractor's insurance must be primary with respect to any other insurance that may be carried by the District, its officer, agents, and employees; the District's coverage must not be called upon to contribute to or share in the loss.
- C. Cancellation Clause Revision: The Certificate of insurance must provide a 30-day notice of cancellation (10-day notice for nonpayment of premium).  
**NOTE:** The standard wording in the ISO certificate of insurance is not acceptable. The following words must be crossed out or deleted from the standard cancellation clause: ". . . endeavor to . . ." AND ". . . ; failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents, or its representatives."
- D. Acceptability of Insurers: All coverages must be issued by companies admitted to conduct business in the State of California that hold a current policyholder's alphabetic and financial size category rating of not less than A-V according to the current *Best's Key Rating Guide* or to a company of equal financial stability that is approved by the District's risk management administrator.
- E. Self-Insured Retentions or Deductibles: Any deductible or self-insured retention must be declared to and approved by the District. At the option of the District, either (i) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the District, its officers, officials, employees, and volunteers; or (ii) the Contractor shall provide a financial guarantee satisfactory to the entity guaranteeing payment of losses and related investigations, claim administration, and defense expenses.
- F. Subcontractors: The Contractor must require each of its Subcontractors of any tier to carry the aforementioned coverages, or the Contractor may insure Subcontractors under its own policies.
- G. Amount of Liability Not Limited to Amount of Insurance: The insurance procured by the Contractor for the benefit of the District must not be deemed to release or limit any liability of the Contractor. Damages recoverable by the District for any liability of the Contractor must, in any event, not be limited by the amount of the required insurance coverage.
- H. Coverage to be Occurrence Based: All coverage must be occurrence-based coverage. Claims-made coverage is not allowed.
- I. Waiver of Subrogation: The Contractor agrees to waive subrogation against the District to the extent that any loss suffered by the Contractor is covered by any commercial general liability policy, automobile policy, workers' compensation policy, or builders' risk policy described in Article 14.16.01. Required Coverages. The Contractor agrees to advise its broker/agent/insurer about this provision and obtain any endorsements, if needed, necessary to ensure the insurer agrees.

J. Noncompliance: The District reserves the right to withhold payments to the Contractor in the event of Material noncompliance with the insurance requirements outlined above.

K. The Contractor shall mail or deliver the certificates and endorsements to:

- Construction Contracts and Support Unit
- Contracts Administrator/ Plan Room
- Santa Clara Valley Water District

See District website (<http://www.valleywater.org/ContactUs.aspx>) for appropriate address to mail, express mail, or hand carry.

L. The certificate of insurance must include the name of the Project.

M. For any questions, the Contractor's insurance broker is advised to call the District Risk Management Administrator at (408) 630-2213.

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## **SECTION 15. GENERAL COORDINATION**

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### **15.01. Meeting Requirements**

- A. This Article includes requirements for scheduling, attending, and conducting Project meetings for the purpose of addressing issues related to the Work and for reviewing and coordinating progress of the Work. Project meetings include the preconstruction meeting, progress meetings, coordination meetings, and special meetings as specified herein.
- B. Qualifications of meeting participants: Representatives of firms and organizations participating in each meeting shall be qualified and authorized to act on behalf of the firm or organization they represent.

#### **15.01.01. Preconstruction Meeting**

- A. The purpose of the preconstruction meeting is to review the Project, designate responsible personnel, and inform the Contractor of the District's Contract administrative procedures, correspondence communication protocol, and other special requirements of the Contract. The Contractor shall come prepared to discuss its staffing, how it will successfully perform the Work, and discuss its plan for temporary utilities, safe Work environment, environmental compliance, emergency response, and any tie-ins, outages, or shutdowns. The Contractor shall also be prepared to review and discuss the Contractor's markup breakdown, Change Order pricing structure, the Standards to be used on the Project, and what the Contractor must provide as backup for Change Orders or for extra Work pricing.
- B. The Engineer will arrange the preconstruction meeting and will notify the Contractor regarding the meeting time, date, and place. The meeting shall be attended by the Contractor and its Superintendent and all representatives of Subcontractors or suppliers whom the Contractor may desire to invite or whom the District may request with the intent being a full understanding of the issues discussed by all parties. The Engineer shall prepare the agenda, preside at the meeting, and record meeting minutes.

#### **15.01.02. Progress Meetings**

- A. The Engineer shall conduct progress meetings on a regular weekday and at a time mutually agreed to by the Contractor and by the Engineer. The purpose of the progress meetings is to review construction progress; submittal status; Potential Change Order, Change Order, and DCO status; construction safety issues and concerns; conflicts; environmental compliance; public/neighborhood issues; progress payments; and any other subject as deemed appropriate.
- B. The Contractor shall allow for one (1) meeting a week.
- C. Subject to the Engineer's approval, the frequency of the progress meetings may be reduced at the beginning and at the end of the construction period.

- D. The Contractor's superintendent, suppliers, and Subcontractors shall attend the meetings as required. Third parties, such as agency representatives and utilities, may be invited by the Engineer to attend as deemed appropriate.
- E. Typical agenda. Typical agenda items can include:
  - 1. Review and approval of previous meeting minutes.
  - 2. Review of progress since the previous meeting.
  - 3. Contractor's Progress Schedules, including Look-Ahead Schedules.
    - a. Review of off-site fabrication and delivery schedules.
    - b. Problems that may affect the Contractor's schedule performance.
    - c. Corrective measures to recover from forecasted Delays whether Excusable or Inexcusable.
    - d. Updates and/or revisions to the Contractor's Detailed Progress Schedules.
  - 4. Interface with operations.
  - 5. Safety and security.
  - 6. Review of submittals schedule.
  - 7. Status of RFIs.
  - 8. Field observations, problems, and conflicts.
  - 9. Status of QC inspections and corrections.
  - 10. Environmental issues.
  - 11. Housekeeping.
  - 12. Status of submittal review.
  - 14. Status of PCOs.
  - 15. Status of COs.
  - 16. Other business.
  - 17. A review of the monthly billing once per month.

**15.01.03. Coordination and Special Meetings**

- A. The Engineer shall conduct other coordination and special meetings in addition to progress meetings when appropriate. The purpose of these meetings is to discuss and coordinate shutdowns, outages, utility tie-ins, and any other special issues as deemed necessary.
- B. Date, time, and location for coordination and special meetings shall be as mutually agreed to by the Engineer and by the Contractor. The Contractor shall ensure attendance of appropriate Contractor staff, Subcontractors, and suppliers.
- C. Worker Environmental Awareness Training (BMP G-1)
  - 1. All Contractor personnel including subcontractors that will access the project site shall attend a 30-minute environmental awareness meeting in the field prior to start of construction. See Section 10 and Section 19 for additional requirements.
  - 2. District staff and construction personnel are informed by District environmental staff about the conditions and restrictions agreed to by the Water District according to project permit requirements, protected species, and the California Environmental Quality Act (CEQA) documents adopted for the project.
  - 3. Training includes information about approved work and road use limitations, and construction activity restrictions. The purpose of the training is to protect water, air quality, people, and sensitive biological resources and avoid fines associated with non-compliance.

**15.02. Integration and Coordination With District Operations****15.02.01. Overview of Existing Systems and Facilities**

- A. The Following is a cursory overview of typical processes, functions, and work at the Santa Teresa WTP. Not all items listed are shown on the Drawings.
  - 1. Water treatment:
    - a. Water flows from reservoirs and pipeline sources to Santa Teresa WTP. This, as yet untreated, water is called “raw water.”
    - b. Raw water is injected with several chemicals in the raw water pipeline system at the Static Mixer. These chemicals are added to aid in the conglomeration of particles in the water and oxidize particulate matter. The raw water piping splits to the East and West sides of the treatment plant. Chemicals can be added at the East and West Pumped Mixer points prior to the raw water entering the flocculation and sedimentation basins.

- c. Water flows through the sedimentation basins where particles drop to the bottom of these basins. This “settled water” enters the Settled Water (SW) Channel and heads to the Ozone Contactor where ozone and other chemicals are added to disinfect the water and provide other process benefits.
- d. After ozonation, the “ozonated water” enters the Applied Water (AW) Channel and flows to and through 12 filters (6 on the east side and 6 on the west side). Water enters the top of the filter and flows downwards through the filter media where it enters the Filtered Water (FW) Channel as “filtered water.” Chemicals are injected at the end of the FW Channel.
- e. Periodically, a filter is removed from service and is cleaned by reversing the flow of water through the filter media and blowing air into the filter media. This process is known as “backwashing.” Water for backwashing is pumped from the backwash water pump station. Large blowers provide air for agitating the filter media during backwashing. Each blower is essential to keep the filter media clean and to prevent the filter from plugging. These blowers are housed in the generator/blower building. This same building also houses standby electrical power generators for the treatment plant.
- f. Backwash water is also called “washwater.” Used backwash water flows into the Washwater Equalization Basins. The washwater is pumped to the Washwater Clarification Facility where it is treated as it goes through the flocculation and sedimentation process. The “settled” washwater enters the Washwater Clarification wetwell. This wetwell water eventually gets pumped back to the head of the plant for reprocessing.
- g. After the filter-to-waste cycled ends, which indicates that the filter has hit the finished water turbidity setpoints, water assumes its normal flow pattern and flows to the clearwell and transmission system.
- h. The filtered water is routed via a 96-inch diameter pipeline into the buried 10 million-gallon clearwell. Chemicals are added at the entrance into the clearwell. This clearwell is connected with piping that distributes water to consumers.

## 2. Operations

- a. The treatment plant is staffed 24 hours a day, every day of the year by licensed water treatment professionals. Staff monitors all plant facilities, operate equipment and systems, and enter and exit the water treatment plant grounds as required for their duties.

Supervisory operations, maintenance, and engineering staff are also based at the treatment plant.

- b. Chemical storage, metering, conveyance, and application systems are operated continuously 24 hours a day, 7 days a week (i.e., live chemical systems).
  - c. Chemical deliveries for the various treatment processes occur on an almost daily basis. The arrival times of chemical deliveries are very difficult to predict as it depends upon the vendor's delivery schedule and area traffic conditions. In addition, the plant may have several chemical deliveries scheduled on the same day depending on their needs.
  - d. Deliveries of various supplies and materials occur on an almost daily basis.
  - e. Training and staff meetings occur on a daily basis.
  - f. Many District vehicles are stationed at Santa Teresa WTP.
  - g. Security guards check vehicles and people entering the gate(s) and patrol the property. Refer to Section 16.
3. Maintenance
- a. Maintenance, electrical, instrumentation, and other technical staff work at Santa Teresa WTP or use it as a resource center for work at other SCVWD facilities. Staff enters and exits the water treatment plant grounds regularly each day and night as required by their duties.
  - b. During the winter, typically half the plant is taken out of service to perform annual winter maintenance while the other half remains operational.
4. District Staff
- a. District staff of various professional disciplines work inside the Operations Building completing various work assignments.

#### **15.02.02. Requirements of an Operational Facility or System**

- A. The Santa Teresa WTP is the regular source of potable water for a large portion of the service area of the Santa Clara Valley Water District. Facility operation must continue as described below at all times, 24 hours a day, every day of the year during the construction of this work. The plant has a rated production capacity of 100 million gallons per day (mgd).



- B. During the high production demand period (between March 16<sup>th</sup> through November 14<sup>th</sup>) the plant must be capable of producing up to 90 million gallons per day (MGD). The plant must have the following facilities intact, serviceable, and operational (at a minimum, together with associated appurtenant facilities) to have a production capacity of 90 million gallons per day (mgd):
1. Raw water pipelines and control and pressure reducing valves.
  2. All pipelines (settled, ozonated, filtered, backwash water and air supply, filter-to-waste, sludge, washwater return, drains, plant water, overflows, bypasses, etc.).
  3. All 4 flocculation and sedimentation basins with sludge collection systems and connecting channels.
  4. Eleven (11) of the 12 filters and connecting channels.
  5. Clearwell, including valve actuator power and instrumentation.
  6. All backwash pumps, constant head tank, flow meter, and appurtenances.
  7. All backwash air blowers.
  8. Plant electrical, instrumentation, and SCADA systems. This also includes the 21 kV and 480-volt electrical power equipment and distribution system.
  9. All existing chemical feed systems including storage tanks, piping, pumps, control panels, instrumentation, diffusers, meters, mixers, and related facilities necessary to maintain uninterrupted, controlled, feed of process chemicals. Interruptions to the feeding of process chemicals are not allowed. Chemical systems include, but are not limited to, sodium hypochlorite, potassium permanganate, powdered activated carbon, liquid alum, ferric chloride, caustic soda, aqua ammonia, phosphoric acid, and cationic, anionic, and nonionic polymers.
  10. Plant water (pumps, hydropneumatic tank, pipelines, and appurtenances) and compressed air systems.
  11. The existing standby power generators, fuel tank and supply piping, transfer and control panels, and all other accessories.
  12. Operations building.
  13. Graystone Pumping Station.
  14. Both washwater recovery (equalization) basins.
  15. Washwater/sludge pump station.

- C. During the low production demand period (between November 1<sup>st</sup> through March 31<sup>st</sup>), the plant must be capable of producing up to 50 million gallons per day (MGD). Facilities must be in service so that one-half of the main treatment plant processes (e.g., flocculation basins, sedimentation basins, settled water channels, filters, etc.) can operate. The treatment plant has the capability of using the flocculation and sedimentation basins on one side and the filters on the opposite side provided the settled water channels are intact. If all of the settled water channels are not intact, then all facilities on the same side (east or west) must be intact. The plant must have the following facilities intact, serviceable, and operational (at a minimum, together with associated appurtenant facilities) to have a production capacity of 50 million gallons per day (mgd):
1. Raw water pipelines and control and pressure reducing valves.
  2. All pipelines (settled, ozonated, filtered, backwash water and air supply, filter-to-waste, sludge, washwater return, drains, plant water, overflows, bypasses, etc.) plus all piping transporting water from either the west or east filters, so that filtered water can arrive at the clearwell.
  3. At least 2 adjacent sedimentation and flocculation basins and connecting channels.
  4. At least 6 filters, all 6 of which are either on the west or east sides of the treatment plant and connecting channels.
  5. Clearwell, including valve actuator power and instrumentation.
  6. All backwash pumps, constant head tank, flow meter, and appurtenances.
  7. All backwash air blowers.
  8. Plant electrical, instrumentation, and SCADA systems. This also includes the 21 kV and 480-volt electrical power equipment and distribution system.
  9. All existing chemical feed systems including storage tanks, piping, pumps, control panels, instrumentation, diffusers, meters, mixers, and related facilities necessary to maintain uninterrupted, controlled, feed of process chemicals. Interruptions to the feeding of process chemicals are not allowed. Chemical systems include, but are not limited to, sodium hypochlorite, potassium permanganate, powdered activated carbon, liquid alum, ferric chloride, caustic soda, aqua ammonia, phosphoric acid, fluoride, and cationic, anionic, and nonionic polymers.
  10. Plant water (pumps, hydro tank, pipelines, and appurtenances) and compressed air systems.
  11. The existing standby power generators, fuel tank and supply piping, transfer and control panels, and all other accessories.

12. Operations building.
13. Graystone Pumping Station.
14. Both washwater recovery (equalization) basins.
15. Washwater/sludge pump station.

**15.03. Coordination of Work Activities****15.03.01. Work by Others**

- A. The Contractor shall coordinate its Work with the planned or ongoing Work of the District or of other District Contractors within or adjacent to the limits of the Contract Work in accordance with Article 4.15. Cooperation with Others. No additional payment shall be made or Claims considered for Delay caused due to the Contractor's failure to coordinate the Work.
- B. The Contractor shall complete the following activities as requested by the Engineer to assist in the coordination of Contract Work with Work by others: attend planning meetings; review and comment on Project documents relative to coordination aspects; schedule Work to promote efficient installation of all improvements; move Equipment, Material, or vehicles to allow Work by others to proceed; and other reasonable activities.
- C. Santa Teresa Water Treatment Plant is staffed 24 hours a day, every day of the year. Staff monitors all plant facilities, operates and maintains equipment and systems, and enters and exits the pumping plant ground as required.
- D. The Contractor is advised that the following water treatment plant maintenance and miscellaneous improvements and Work may take place during the Work of this Contract:
  1. District staff will be completing miscellaneous minor improvements, servicing, and repairs to all areas of this treatment plant during the course of this Work.
  2. The District shall contract with a variety of firms during the course of this Work to complete improvements that are outside the scope of this Work.
  3. District staff shall complete certain Work related to this Project as described under Special Provisions Article 16.01.02. Work Completed by District Staff.
- E. The Contractor is advised that the known construction Projects may take place during the Work of this Contract:
  1. Biennial Testing of Electrical Equipment
  2. Filter Media Replacement Project

**15.03.02. Coordination With Others**

- A. The Contractor is advised that District Staff will be solely responsible for the operation of the Santa Teresa Water Treatment Plant.

**15.04. Construction Survey**

- A. The Contractor shall be solely responsible for the measurement and layout of all of its Work. Any questions regarding the interpretation of project layout shall be resolved by the Engineer.
- B. The Contractor shall survey and/or GPS all points of connection to existing structures or underground utilities prior of beginning the installation of new facilities to confirm the actual locations and grades. Significant deviations shall be reported in writing to the Engineer prior to proceeding with the installation of new facilities.
- C. The Contractor shall not remove or disturb survey monuments and permanent markers unless otherwise approved by the Engineer and the District has recorded and referenced the locations. The Contractor shall be charged at a reasonable rate for the restoration or replacement of survey monuments and permanent markers by the District.

**15.05. Public Notification**

- A. The Engineer is responsible for all written and oral communication with the public and neighbors. The Contractor shall provide the Engineer with the schedules of major construction operations three weeks in advance of their occurrence to allow the District time to notify the neighbors. The Contractor shall include in the submittals the major milestones, descriptions of the work activities, and the start and end date(s) of each activity.

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## **SECTION 16. WORK CONSTRAINTS AND SITE RESTRICTIONS**

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### **16.01. General Work Constraints**

- A. Work for the air wash line replacement will be conducted within the City of San Jose, in Santa Clara County. The Contractor shall comply with all ordinances, regulations, permits, and requirements of the applicable jurisdiction having authority.
- B. The contractor shall take all precautionary measures as necessary to not cause any disruption of District operations. The activities discussed below do not include all items potentially affecting the Districts operations, but are intended to describe certain actions that could disrupt the normal functions or cause a shutdown of the facility:
  - 1. Contractor removing from service, restricting, or impeding the function of any utility such as water, electrical, gas, telephone, compressed air, sanitary sewer, storm drain, chemical, and instrumentation system.
  - 2. The Contractor's attention is directed to Article 16.02.02 – "Protection of Existing Utilities."
  - 3. Contractor delaying or denying access to any District structure or area needed by District staff to complete their work assignment.

#### **16.01.01. Shutdown Constraints**

- A. The water treatment plant is a critical operation facility which must remain in continuous operation except as specified herein. Construction shall be scheduled and performed in a manner to maintain continuous operation of the treatment plant except during the specified shutdown period. Operation of STWTP must continue at all times, 24 hours a day, every day of the year except during the specified shutdown periods.
- B. The total quantity, duration, and timeframe of allowable shutdowns are listed below:
  - 1. West Side Half Plant Shutdown: The District will allow the Contractor a half-plant shutdown, not to exceed consecutive 6 weeks Starting on February 15, 2021.
  - 2. East Side Half Plant Shutdown: The District will allow the Contractor a half-plant shutdown, not to exceed consecutive 6 weeks Starting on October 18, 2021.
- C. The District reserves the right to change the shutdown dates, if needed, based on the operational constraints to meet the water demands.

- D. Plant shutdowns, system shutdowns, or partial power outages as allowed in these Specifications shall take place only during the winter months except when noted otherwise.
- E. The winter period is defined as the period between November 1st through March 31<sup>st</sup> each year.

**16.01.02. Work Completed by District Staff**

- A. Additional District staff will monitor the Contractor's activities during execution of the following special Work. The Contractor shall provide a minimum of three (3) working Days notification to the Engineer to arrange monitoring of the specific Work under the classifications described below:
  - 1. Shutdown of any pipelines.
  - 2. Disconnect the electrical and control system wires for Valve Actuators before demolition and reconnection after installation

**16.02. Utilities**

- A. The Contractor's attention is directed to Standard Provisions Article 4.10. Preservation of Property and Article 4.25. Coordination with Utilities.
- B. Various existing utilities, both above and below ground, may be encountered during construction. The Contractor shall perform all Work in such a manner so as to avoid damage to existing utilities. The Contractor is responsible for any damage due to failure to exercise due care.
- C. The Contractor shall notify underground service alert (U.S.A.) a minimum of five (5) working Days prior to the start of excavation or demolition in accordance with California Government Code requirements. The Contractor is responsible for coordinating the U.S.A. notification according to the Contractor's schedule; any delay due to utility markings through the U.S.A. process is the responsibility of the Contractor.
- D. The Contractor shall verify the exact location of all indicated or field marked utilities and shall make a sufficient number of exploratory excavations of all utilities that may interfere with the Work sufficiently in advance of the construction. The Contractor shall promptly notify the Engineer when such exploratory excavations show the utility location as shown on the Drawings to be in error.
- E. The Contractor shall not interrupt the service function or disturb the support of any utility without authority from the utility owner or an order from the Engineer. All valves, switches, vaults, and meters shall be maintained and readily accessible for emergency shutoff.

**16.02.01. Utility Coordination**

- A. The Contractor is responsible for coordination of Work near utilities and for the protection of the utility during construction.
- B. The District and the owners of utilities or their authorized agents reserve the right to enter upon the right of way at all times for the purpose of operations and maintenance of their facilities or for making necessary connections or repairs to their properties. The Contractor shall cooperate with the District and with the affected utilities engaged in such Work to avoid any unnecessary Delay or hindrance to such Work.

**16.02.02. Protection of Existing Utilities**

- A. The Contractor is responsible for doing all Work and furnishing all Materials required for protecting in place or restoring all existing above- and below-ground utilities disturbed or damaged during construction to a condition equal to or better than that existing prior to construction.
- B. The Contractor shall protect all utilities that may be impacted by the Work. All exposed utilities shall be supported firmly and uniformly conforming to the utility requirements. No utilities shall be left exposed for a period exceeding eight (8) hours unless approved by the utility and by the Engineer. Unless otherwise shown on the Drawings, all utilities shall be backfilled with at least 12 inches of select imported backfill around the utility.
- C. All utility pole and guy anchors shall be protected, and, where the walls of a trench are within five (5) feet of a pole or anchor, lateral support to the pole shall be provided by the Contractor.
- D. The Contractor shall immediately notify the utility owner and the Engineer if any existing utilities have sustained damage prior to excavation or if the Contractor disturbs or damages the existing utility during the excavation. The Contractor shall bear the cost of repair or replacement of any utility damaged as a result of construction operation.
- E. In no case shall any service (e.g., gas, water, electricity, telephone, etc.) be interrupted.

**16.02.03. Utility Installation/Relocation by Others**

- A. No Special Requirements.

**16.03. Protection of Existing Improvements**

- A. The Contractor's attention is directed to Standard Provisions Article 4.10. Preservation of Property.



- B. Contractor shall at all times protect the granular activated carbon filter media from direct contact with the Contractor and the Contractor's materials, equipment, dust and debris.
- C. Contractor shall provide temporary facilities to support the loads imposed by the Contractor and the Contractor's materials and equipment to prevent crushing, grinding, or pulverizing the granular activated carbon filter media. Contractor shall prevent sinking into the media bed through the use of these temporary facilities.
- D. Contractor shall submit a filter media protection plan to include, but not be limited to materials used to protect the filter media and installation plan.

**16.03.01. Survey Monuments**

- A. No survey monuments, permanent markers for the District right of way, or District survey control points shall be removed or disturbed until the Engineer has recorded the locations thereof and a permit for such removal has been received from the agency having jurisdiction. When the construction Work has been completed, the Contractor shall replace the monuments accurately in the locations as referenced by the Engineer.
- B. If any marker or monument is destroyed by the Contractor without prior written approval of the Engineer, the Contractor shall be responsible for the accurate replacement of the marker or monument (i) by a land surveyor licensed by the State of California; (ii) in accordance with the California Business and Professions Code Chapter 15 Land Surveyors, Section 8771; and (iii) at no expense to the District.

**16.04. Preconstruction Surveys****16.04.01. Preconstruction Survey Within the Project Limits**

- A. After the Contract has been awarded and before commencement of the Work, the Contractor shall conduct a thorough examination of the Work areas within the Project limits only after notification and coordination with the Engineer.
- B. The Contractor shall inspect the condition of all areas that may have potential impacts, including, but not limited to, existing improvements, levees, ramps, buildings, landscape planting, architectural finishes, the size of structural cracking or settlement, the rate of leakage, and any other conditions deemed appropriate. The presence of the Engineer shall in no way relieve the Contractor of the responsibility for completely and accurately documenting all existing conditions.
- C. Records of all observations shall be prepared by the Contractor; every copy of all documents shall be signed by the authorized representative of the Contractor and provided to the Engineer. Photographs and videos with dates shall be made by the Contractor and included in the record of observations. One (1) signed

copy of every document, photograph, and video will be kept on file in the office of the Engineer.

- D. The above records, photographs, and videos are intended for use as evidence in ascertaining the extent of any damage that may occur as a result of the Contractor's operations during the prosecution of the Work.
- E. Structural surveys, if required, shall be conducted by a licensed civil or structural engineer.

**16.04.02. Surveys of Properties in the Vicinity of the Work**

- A. No Special Requirements.

**16.05. Rights of Way****16.05.01. District-Furnished Right of Way**

- A. The District has provided all rights of way as shown on the Drawings. The Contractor has full use of this right of way except for the limitations specified in these Specifications and as noted on the Drawings.

**16.05.02. Contractor-Furnished Right of Way**

- A. Any additional rights of way desired by the Contractor for its convenience shall be acquired by the Contractor at no expense or obligation to the District. The Contractor shall provide the Engineer with copies of any agreements between the Contractor and property owners regarding disposal of excess Materials generated by the Contractor's activities, storage of Materials, or any use of property in conjunction with this Project. The agreement shall state that the agreement is solely between the Contractor and the property owner and that the District is not a party to the agreement and not responsible for compliance with any conditions stated in the agreement.

**16.05.03. Temporary Construction Easements**

- A. No Special Requirements.

**16.06. Access to Properties Owned by Others**

- A. The Contractor shall conduct the construction operations in a manner that cause as little inconvenience as possible to adjacent property owners.
- B. When construction operation is directly within the driveway area, temporary access shall be provided. The existing access shall not be closed until the temporary replacement access is usable. Once construction is completed, access shall be restored to a condition equal to or better than the existing condition prior to the Contractor's operation.

- C. The Contractor shall comply with California Vehicle Code Sections 22500 Prohibited Stopping Standing or Parking and 22500.1 Additional Prohibited Stopping Standing or Parking Fire Lane regarding stopping, parking, or leaving any vehicle in front of a public or private driveway.

**16.07. Access to the Job Site**

- A. The Project location is shown on a map included in the Drawings. The Contractor may use the existing roads to access and perform the Work subject to the restrictions specified herein.
- B. It is the Contractor's responsibility to obtain any and all permits that may be required from all applicable regulatory agencies to move Materials and Equipment to the job site, dispose of excess Material created by the Contractor's operation, and for traffic control to, from, and on the Project sites.
- C. Project site access routes, staging areas, and work areas will be carefully controlled. Gates will control ingress and egress to the site. On-site access and work time will be allowed only during the daylight (dawn to dusk).

**16.08. Access Roads Within the Job Site**

- A. The Contractor shall maintain access roads to all staging, office trailer, storage areas, and to other areas to which frequent access is required. The Contractor shall maintain access to all other existing facilities on the site, including access for delivery of Materials and for maintenance and operation.
- B. The Contractor is responsible for damages to buried utilities resulting from loads imposed on temporary roads constructed by the Contractor or other access routes used by the Contractor.
- C. The Contractor shall maintain on-site access roads free of mud. Under no circumstance shall vehicles leaving the site track mud or dirt off the site onto public rights of way.

**16.09. District Use of Facilities/Premises Within the Work Area**

- A. The District reserves the right to access and use the following premises during performance of the Work to conduct operations and maintenance of District facilities.
- B. The Contractor shall coordinate all construction operations with the District to avoid conflict and to facilitate the District's use of the premises.
- C. Unless otherwise altered by the Work, the Contractor shall restore the premises to preexisting condition, and shall immediately repair any damages to the premises caused by the Contractor's operations.

## **SECTION 17. SAFETY AND SECURITY**

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### **17.01. Safety**

- A. Refer to Standard Provision Articles 8.01, 8.02, 8.05, 8.07–8.09 and 8.13 for safety requirements.

### **17.02. Safety and Health Program**

- A. Refer to Standard Provision Articles 8.10–8.12, and 8.13 for safety and health program requirements.
- B. Refer to Santa Clara County Public Health Officer's safety Order for latest requirements on Novel Coronavirus COVID-19.

### **17.03. Security Requirements at Job Site**

- A. Refer to Standard Provisions Articles 8.15 for security requirements.

#### **17.03.01. General**

#### **17.03.02. Identification and Badging**

- A. Refer to Standard Provisions Articles 8.17 for Identification and Badging.

#### **17.03.03. Background Checks**

- A. Refer to Standard Provisions Articles 8.18 for Background checks.

#### **17.03.04. Site Access Control**

- A. Refer to Standard Provisions Articles 8.19 for Site Access Control for requirements.
- B. The District will maintain a security checkpoint at the Graystone Lane entrance gate of the Santa Teresa Water Treatment Plant.

#### **17.03.05. Mail and Postal Deliveries to the Project Site**

- A. Mail and postal deliveries for the Contractor shall not be permitted to the project site.

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## **SECTION 18. PERMITS AND REGULATIONS**

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### **18.01. Permits and Agreements**

#### **18.01.01. District-Obtained Permits**

- A. None.

#### **18.01.02. Contractor-Obtained Permits**

- A. None.

#### **18.01.03. Operation Regulations**

- A. No Special Requirements.

### **18.02. Hours of Work**

- A. Unless noted otherwise, no Work, including Material hauling to/from the site and Equipment movement, shall be performed during the Days and hours restricted by and set forth in this Article.
- B. No work shall take place during the hours of 5:00 p.m. to 8:00 a.m.
- C. Work may be allowed on Saturdays, Sundays, and holidays. The Contractor must request approval from the Engineer forty-eight (48) hours in advance of such weekend or holiday. The Contractor shall, at all times, comply with the Santa Clara County noise ordinance.
- D. Holidays are defined to include New Year's Day, Martin Luther King's Birthday, President's Day, Cesar Chavez Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

### **18.03. Noise Pollution and Vibration**

#### **18.03.01. Noise**

- A. The Contractor shall be responsible for ensuring that noise produced by construction activities does not exceed the applicable local noise ordinance standards and is in compliance with the performance standards set forth in this Article.
- B. In no case shall the noise levels produced by the Contractor exceed any of the following maximum levels at the Project rights-of-way line:

#### Single- and Two-Family Dwelling Residential Areas

Weekdays: 7 a.m. to 7 p.m.	75 dBA
Weekdays: 7 p.m. to 7 a.m.	50 dBA
Saturdays, Sundays, and Holidays:	50 dBA

Multifamily Dwelling Residential Area

Weekdays: 7 a.m. to 7 p.m.	80 dBA
Weekdays: 7 p.m. to 7 a.m.	55 dBA
Saturdays, Sundays, and Holidays	55 dBA

Commercial and Industrial Areas

Weekdays: 7 a.m. to 7 p.m.	85 dBA
Weekdays: 7 p.m. to 7 a.m.	60 dBA
Saturdays, Sundays, and Holidays	60 dBA

For areas where construction activities are adjacent to more than one (1) land zone, the Contractor shall comply with the more restrictive noise criteria.

Steady, audible tone of Equipment or machinery that must be left on continuously shall not exceed the above standards minus 5 dBA.

**18.03.02. Noise Monitoring**

- A. Noise Monitoring: The Engineer will occasionally take sound readings with a hand-held noise-level meter during construction activities and operations of any noise-producing Equipment to monitor the Contractor's compliance with the noise criteria. Any Equipment causing noncompliance with the noise criteria shall be removed from the job site as directed by the Engineer.

**18.03.03. Vibration Monitoring**

- A. No Special Requirements.

**18.04. Air Pollution**

- A. No Special Requirements.

**18.05. Spillage and Dust**

- A. No Special Requirements.

**18.06. Traffic Control**

- A. No Special Requirements.

**18.07. Truck Traffic and Hauling**

- A. Trucks traffic and haul routes shall be in compliance with local permits and ordinances. The Contractor shall obtain, at Contractor's expenses, any required Haul Route Permits from the applicable local jurisdictions.
- B. The arrival and departure of trucks hauling material will be limited between 8:30 a.m. to 3 p.m. Monday through Friday.

- C. The Contractor shall post information signs for truck drivers at approved locations indicating truck traffic hour restrictions. Signs shall be readily visible. Violators shall be warned or barred from the site.
- D. The Contractor shall not perform any loading or unloading activities or any other related operations outside the project limits, or outside the hours of work as defined in these Specifications. In addition, no loading, unloading or any other construction related operations shall be performed at or near the water treatment plant entry gate.
- E. All hauling and delivery truck schedules shall be submitted to the Engineer for review within 72 hours of actual occurrence.

**18.07.01. Truck Arriving Early, Truck Idling, and Queuing**

- A. The District actively seeks to avoid or minimize unnecessary disturbance of the neighborhood from construction activities. Accordingly, all Contractor's deliveries shall be coordinated to ensure that no Contractor delivery vehicles arrive at the site entry gate before 8:30 am, unless otherwise specified in these Specifications.
- B. No idling or queuing shall take place on any residential streets in the surrounding neighborhood except for reasons noted below:
  - 1. Idling when the vehicle must remain motionless due to an official traffic control device, traffic control signal, or at the direction of a peace officer, or traffic conditions over which the driver has no control;
  - 2. Idling when being forced to remain motionless due to adverse weather conditions or due to mechanical difficulties over which the driver has no control;
  - 3. Idling to verify that the vehicle is in safe operating condition as required by Law;
  - 4. Idling at the site entrance for security checks or searches by District guards.
- C. Contractor's attention is directed to Article 12.05 regarding Liquidated Damage Assessment for violating the arrival time or idling/queuing requirements.

**18.08. Parking**

- A. All construction equipment and worker vehicles arriving at the site shall park within the designated staging areas as indicated on the Drawings. Workers shall enter the site as soon as they arrive to the site.
- B. No trucks operated by the Contractor, subconsultants or deliveries for construction or worker vehicles shall be parked on residential streets.



- C. Contractor's workers shall not arrive onto the site more than thirty (30) minutes prior to the start of work nor remain on the site thirty (30) minutes after the end of work.

**18.09. Discovery of Archeological Artifacts and Human Remains**

- A. No Special Requirements.

**18.10. Aesthetic Requirements**

- A. No Special Requirements.

**18.11. Recreation**

- A. No Special Requirements.

**18.12. Utilities and Service System**

- A. No Special Requirements.

**18.13. Payment**

- A. Unless noted otherwise, full compensation for Work involved in complying with all requirements under Special Provisions Section 18 Permits and Regulations shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time shall be allowed or payment made.

## **SECTION 19. ENVIRONMENTAL**

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### **19.01. Compliance With NPDES General Permit**

- A. No Special Requirements.

#### **19.01.01. SWPPP**

- A. No Special Requirements.

#### **19.01.02. Storm Water BMPs**

- A. The BMP Action Plan shall incorporate appropriated Storm Water BMPs as required.

#### **19.01.03. Payment**

- A. Full compensation for doing all Work necessary to comply with the NPDES General Permit, including the preparation and implementation of the SWPPP; all Materials, labor, Equipment, service, supervision, documentation, and submittals shall be considered incidental and included in the other items of Work; no additional payment shall be made.

### **19.02. Other Discharge Permits**

- A. No Special Requirements.

### **19.03. BMP Action Plan**

- A. The Contractor's attention is directed to Standard Provisions Article 10.02.01.
- B. The Contractor shall prepare and implement a BMP Action Plan.
  - 1. The BMP Action Plan shall incorporate storm water BMPs and applicable Risk Level 1 requirements in accordance with the NPDES General Permit (Order # 2009-0009 DWQ). A copy of the NPDES General Permit can be found at the following:  
[http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/docs/constpermits/wqo\\_2009\\_0009\\_complete.PDF](http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_complete.PDF).
  - 2. The Contractor shall design, construct, operate, inspect, and maintain the BMPs in accordance with the current CASQA Construction BMP Handbook/Portal available at [www.cabmphandbooks.com](http://www.cabmphandbooks.com).
  - 3. The BMP Action Plan shall include, but shall not be limited to, the following:
    - a. Erosion control BMPs
    - b. Sediment control BMPs

- c. Run-on/runoff control BMPs
  - d. Wind Erosion control BMPs
  - e. Tracking control BMPs
  - f. Non-storm-water management BMPs
  - g. Waste management and Material pollution control BMPs.
- 4. The BMP Action Plan shall include (i) a site map showing the construction areas, staging areas, and where BMPs and other requirements are implemented; and (ii) a diagram of site storm water drainage patterns, including the Local storm drain system and the receiving waterway.
  - 5. Prior to the commencement of any Work activities in the field, the Contractor shall receive a favorable review of the BMP Action Plan by the Engineer.

**19.03.01. Payment**

- A. Full compensation for doing all Work necessary to prepare and implement the BMP Action Plan, including all Materials, labor, Equipment, services, supervision, documentation, and submittals, shall be considered incidental and included in other items of Work; no additional payment shall be made.

**19.04. Water Pollution Discharges**

- A. No Special Requirements.

**19.05. Regulated Material Management**

- A. No Special Requirements.

**19.05.01. Asbestos Management**

- A. No Special Requirements.

**19.05.02. Lead Management**

- A. No Special Requirements.

**19.06. Solid Materials Management****19.06.01 Definitions**

- A. Certified Facility: A reuse, recycling, composting, or Materials recovery facility meeting the required Diversion percentages set forth in this Specification, which the Engineer (i) has determined can accept diverted Material; (ii) has obtained all applicable Federal, State, and Local permits; and (iii) is in full compliance with all

applicable regulations for reuse, recycling, composting, and/or Materials recovery.

- B. Construction Waste: Building and site improvement Materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste does not include any of the above specified Material/solid waste that contains contaminated or hazardous substances. Construction waste does not include excavated soil or groundwater.
- C. Demolition Waste: Building and site improvement Materials resulting from demolition or selective demolition operations. Demolition waste does not include any of the above specified Material/solid waste that contains contaminated or hazardous substances.
- D. Disposal: Removal off site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in a landfill or an incinerator acceptable to authorities having jurisdiction.
- E. Divert/Diversion: Use of Materials for any lawful purpose other than disposal in a landfill or in a transformation facility.
- F. Post-Consumer Recycled Content: The percentage of a new product that contains Materials that were recycled from product that was used by the end consumer and then collected for recycling.
- G. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for use in some other form.
- H. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in the same form in another facility.
- I. Transformation Facility: A facility whose function is to convert, combust, or otherwise process solid waste by incineration, pyrolysis, destructive distillation, or gasification or to chemically or biologically process solid waste for the purpose of volume reduction, synthetic fuel production, or energy recovery. A composting facility is not a transformation facility.

#### **19.06.02. Construction and Demolition Waste Management**

- A. The Contractor shall submit a Solid Materials Management Plan identifying procedures to be used for management of construction and demolition waste generated by the Work, including the facilities to be used for both disposal and recycling/salvaging; the estimated quantities and percentages (by weight) of construction demolition waste disposed; and recycled/salvaged categorized by waste type. For each facility listed in the waste management plan, the Contractor shall provide the facility name and address, facility owner name, and contact information. This submittal shall be approved by the Engineer prior to commencement of any Work on the Project site.

- B. The Contractor is directed to the City of San Jose's Construction and Demolition Deposit Program Certified Facility List ([http://www.sjRecycles.org/business/PDF/cddd\\_certified\\_list.PDF](http://www.sjRecycles.org/business/PDF/cddd_certified_list.PDF)) for Local construction and demolition waste recycling service provider listings. Additional recycling resources are available at [www.ciwmb.ca.gov/condemo/](http://www.ciwmb.ca.gov/condemo/) and at [www.crra.com/cdc/index.html](http://www.crra.com/cdc/index.html).
- C. At the conclusion of the Project, the Contractor shall complete a solid material management report form, which documents Materials recycled/salvaged and disposed and demonstrates compliance with the requirements specified herein, facilities utilized, and weights of construction and demolition waste generated by the Project. Receipts shall be attached as well that verify Materials and quantities disposed and recycled/salvaged. This form shall be submitted with the request for final payment; the form is included in Appendix C.
- D. Full compensation for preparing the Solid Materials Management Plan and for completing the solid material management report form shall be considered as included in the Contract Price(s) for various items of Work involved; no additional payment shall be made.

**19.06.03. Post-Consumer Recycled Content Requirements**

- A. At the conclusion of the Project, the Contractor shall list Materials furnished/installed that contains PCRC and document that the percent content for each material equals or exceeds ten (10) percent and shall attach documentation certifying the percentage of post-consumer recycled product content contained in the material. This information shall be included in the solid material management report form specified in Special Provisions Article 19.06. Solid Materials Management. As specified herein, this form shall be submitted with the request for final payment, payment will be withheld until the completed form is submitted, and no interest on withheld amounts will be due the Contractor.
- B. Full compensation for documenting the above specified information in the solid Material management report form shall be considered as included in the Contract Price(s) for various items of Work involved; no additional payment shall be made.

**19.07. Migratory Birds**

- A. The Contractor's attention is directed to Standard Provisions Article 10.14. Migratory Birds for additional requirements.

**19.07.01. Regulatory Requirements**

- A. The Contractor shall comply with all applicable federal and state laws, rules and regulations related to protection of migratory birds. The Contractor's attention is directed to the federal Migratory Bird Treaty Act (16 USC 703-712 50 CFR Part 21 and 50 CFR Part 10), Appendix C of these Specifications, and the California Department of Fish and Game Code Sections 2000, 3503, 3503.5,

3513, and 3800, that protect migratory birds, their nests, and their eggs from disturbance or destruction.

- B. The Contractor shall carry out all activities in a manner consistent with the U.S. Fish and Wildlife Service's Migratory Bird Program at the time Contractor's activities are performed. Except as may be noted elsewhere in this Article, active nests are those containing either an egg (or eggs) or young, and/or nests used by birds of prey (i.e., members of the orders Falconiformes and Strigiformes, known as raptors) regardless of the presence of eggs or young; whereas inactive or partially built nests of species other than raptors do not contain any eggs or young. To determine the occupancy of nests, the Contractor shall rely upon the professional expertise of a qualified biologist.
- C. The Contractor shall coordinate several measures, including; awareness and training of Contractor's personnel of which migratory bird species are protected, their nesting seasons and seasonal variability; surveys to determine the presence of nesting birds in the project area; establishment of protective buffer zones around nests; installation and maintenance of exclusion devices; and periodic monitoring to assure the adequacy of the compliance measures.

#### **19.07.02. Qualified Biologist**

- A. The Contractor shall employ a biologist meeting the qualifications of a Qualified Biologist as listed in Article 19.07.02. paragraph B. to supervise all biological resource Work for the Project. At any time during the Contract, the District reserves the right to request a replacement biologist due to nonperformance or for reasons outlined in Standard Provisions Article 3.04. Character of Workers.
- B. The Qualified Biologist shall have the training, experience and qualifications to perform the migratory bird compliance describe in the Article and to supervise all migratory bird-related activities under Article 19.07. Migratory Birds. The Qualified Biologist shall possess educational and professional training in ornithology, habitat assessment, and migratory bird regulations; and shall be familiar with the species of birds and bird resources likely to be encountered on the Project. The Qualified Biologist shall have experience to implement protocols, collect and organize ornithological data and be capable of making appropriate decisions in the field. A minimum of one year of experience is required in performing biological, ecological or related scientific research.

#### **19.07.03. General Nesting Seasons**

- A. The bird nesting season in the Project area is generally considered to be from January 15 through August 31. However, annual variation in climatic conditions can alter these periods by several weeks.

#### **19.07.04. Protective Buffer Zones**

- A. The Contractor's attention is directed to Standard Provisions Article 10.14.04. Protective Buffer Zones.

**19.07.05. Exclusion Devices**

- A. Refer to Standard Provisions Article 10.14.05. Exclusion Devices.

**19.07.06. Nest Prevention**

- A. The Contractor's attention is directed to Standard Provisions Article 10.14.06.

**19.07.07. Submittals**

- A. No Special Requirements.

**19.07.08. Payment**

- A. Work involved in complying with the requirements of this Article shall be considered as included in the Contract Price(s) paid for the various items of Work involved; no additional time or payment shall be made.

**19.08. Other Wildlife and Fish Species**

- A. No Special Requirements.

**19.09. Sensitive Plants and Vegetation**

- A. No Special Requirements.

**19.10. Proper Pruning Techniques for Woody Vegetation Removal**

- A. No Special Requirements.

**19.11. Plant Pathogen Management**

- A. No Special Requirements.

**19.12. Payment**

- A. Unless noted otherwise, full compensation for Work involved in complying with all requirements under Special Provisions Section 19 Environmental shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time or payment shall be made.

## **SECTION 20. SUBMITTAL AND QUALITY REQUIREMENTS**

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### **20.01. Additional Submittal Requirements**

- A. This Article includes any additional submittal requirements. Also see Standard Provisions Section 7 Submittal Management.

#### **20.01.01 General Requirements**

- A. Submittals shall be in accordance with Standard Provisions Article 7.05. Submittals to be Furnished by the Contractor unless otherwise modified herein.

#### **20.01.02. Immediate Submittals**

- A. Physical construction Work cannot begin until the following immediate submittals have been favorably reviewed by the Engineer. These immediate submittals shall be submitted no later than 15 Days after the date of issuance of the NTP.
  - 1. Section 03 Résumé of Project Superintendent
  - 2. Section 08 Injury and Illness Prevention Plan
  - 3. Section 08 Site Security and Protection Plan
  - 4. Section 08 Site-Specific Safety and Health Plan
  - 5. Section 09 Quality Control Plan
  - 6. Section 10 BMP Action Plan

#### **20.01.03. Special Review Cycle**

- A. No Special Requirements.

#### **20.01.04. Copies**

- A. The Contractor's attention is directed to Standard Provisions Article 7.05. Submittals to be Furnished by the Contractor and in Article 9.12.02. Product Data and Samples.

### **20.02. Exclusive Testing by the District**

- A. No Special Requirements.

### **20.03. Additional Testing Certifications**

- A. Materials in contact with the potable water system shall be NSF61 certified.



**20.04. Contractor's Quality Control****20.04.01. Quality Control Plan**

- A. The Contractor is not required to prepare and submit a Project –Specific Quality Control plan.
- B. However, the Contractor is required to comply with its Quality Control program as outlined in Article 9.03. Contractor's Quality Control Program.

**20.04.02. Contractor's Quality Control Staffing Requirements**

- A. The Contractor shall have a qualified Field QC Representative responsible for QC who is on-site whenever permanent Work is being performed. This Field QC Representative shall report directly to a senior manager of the Contractor to ensure organizational freedom, identify quality problems, and initiate and recommend solutions. The QC plan submittal shall include a letter signed by a principal officer of the Contractor's firm designating the Field QC Manager and specifying the authority delegated to the Field QC Manager to direct cessation or removal and replacement of defective Work. The Contractor shall maintain QC over suppliers, manufacturers, products, services, site conditions, and workmanship to produce Work of specified quality. Testing and inspection shall not relieve the Contractor of its responsibility for quality of Material in place.

**20.04.03. Payment**

- A. Full compensation for doing all Work necessary to provide quality control shall be included in the Contract Price(s) for various items of Work involved; no separate payment shall be made.

## **SECTION 21. PAYMENT PROCEDURES**

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### **21.01. Bid Items**

#### **21.01.01. General Requirements**

- A. Refer to Bid Documents Bid Form No. 1 Bid items for the listing of Bid items.
- B. Unless otherwise indicated, all Bid Items include labor, Material, Equipment, and incidentals in accordance with the Drawings and Specifications to complete the Work.
- C. No separate payment will be made for any Work included in the Drawings and/or Specifications but not specifically set forth in the listing of Bid items. All costs shall be included in a Bid item.
- D. Where there is an overlap in the Work paid for under different Bid items, the Work will be paid for only once under the appropriate Bid item(s), as determined by the Engineer.

#### **21.01.02. Description of Bid Items**

- A. Bid Item No. 1—Mobilization
  - 1. Scope of Work: This Bid item shall include the preconstruction meeting, all preparatory Work, and appurtenant preconstruction operations, including, but not limited to, those necessary for the movement of personnel, Equipment, supplies, and incidentals to the Project site; building and removing any temporary construction areas; Cleaning; installation and removal of temporary facilities necessary for Work on the Project; other Work and operations that must be performed or costs incurred prior to beginning Work on the various Contract items on the Project site; and other Work as specified in these Specifications.
  - 2. Measurement and Payment: Full compensation for furnishing all Work and Material for mobilization shall be included in the lump sum price Bid for Bid Item No. 1, Mobilization. Progress payments will be made in accordance with Section 9 Payment of the State Specifications.
- B. Bid Item No. 2— Demolition
  - 1. Scope of Work: This Bid item includes furnishing all labor, Material, tools, Equipment, and incidentals necessary for demolition work as shown on the Drawings and as specified in these Specifications.
  - 2. Measurement and Payment: Full compensation for furnishing all labor and Material for demolition shall be included in the lump sum price Bid for Bid Item No. 2, Demolition

C. Bid Item No. 3—Environmental Monitoring and Compliance

1. Scope of Work: This Bid shall include doing all work, providing all equipment, and furnishing all materials required to protect, monitor, and restore all environmental conditions as specified in these Specifications and as shown on the Drawings.
2. Measurement and Payment: Unless otherwise specified, full compensation for doing all work and furnishing all materials required for the work as specified in these Specifications and as shown on the Drawings shall be included in the Lump Sum bid price for this Bid Item.

D. Bid Item No. 4—Pipeline Replacement Work

1. Scope of Work: This Bid shall include doing all work, providing all equipment, detailed pipe layout shop drawings, and furnishing all materials required to install the new 12-inch diameter stainless steel air wash line and air testing as specified in these Specifications and as shown on the Drawings.
2. Measurement and Payment: Unless otherwise specified, full compensation for doing all work and furnishing all materials required for the work as specified in these Specifications and as shown on the Drawings shall be included in the Lump Sum bid price for this Bid Item.

E. Bid Item No. 5—Support for Internal Pipeline Work

1. Scope of Work: This Bid shall include doing all work, providing all equipment, detailed pipe layout shop drawings, and furnishing all materials required for internal pipeline cleaning, re-lining, air testing, disinfection and video inspection as specified in these Specifications and as shown on the Drawings.
2. Measurement and Payment: Unless otherwise specified, full compensation for doing all work and furnishing all materials required for the work as specified in these Specifications and as shown on the Drawings shall be included in the Lump Sum bid price for this Bid Item.

F. Bid Item No. 6—Painting and Coating

1. Scope of Work: This Bid item shall include doing all work, providing all equipment and furnishing all non-District furnished materials required to prepare, coat and line all internal and external pipeline, appurtenances and associated component surfaces, as specified in these Specifications and as shown on the Drawings.
2. Measurement and Payment: Unless otherwise specified, full compensation for doing all work and furnishing all non-District furnished materials required for the work as specified in these Specifications and as

shown on the Drawings shall be included in the Lump Sum bid price for this Bid Item.

G. Bid Item No. 7— AC Pavement Slurry

1. Scope of Work: This Bid item shall include doing all work, providing all equipment and furnishing all materials required to remove prepare, and replace existing asphaltic concrete pavement, as specified in these Specifications and as shown on the Drawings. Additionally, this bid item includes the slurry seal for all new asphaltic pavement areas and existing asphaltic pavements as shown on the drawings.
2. Measurement and Payment: Unless otherwise specified, full compensation for doing all work and furnishing all non-District furnished materials required for the work as specified in these Specifications and as shown on the Drawings shall be included in the Lump Sum bid price for this Bid Item.

**21.02. Progress Payments and Schedule of Values**

- A. This Article includes requirements for the preparation, format, and submission of the Schedule of Values.
- B. The Contractor shall coordinate the preparation of the schedule of values with Contractor's progress schedule. The Schedule of Values shall be developed from the resource loading function of the Baseline CPM Progress Schedule.
- C. Progress payments will not be made until the Schedule of Values has received favorable review by the Engineer.
- D. Progress Payments shall be based on physical percent complete for each cost loaded schedule activity as determined by visual observation during a joint walkthrough of the project by the Contractor and Engineer on a monthly basis. The schedule activity % complete agreed to shall be input into the schedule. The schedule shall roll up activities to an activity code called Schedule of Bid Prices, in order to facilitate the lesser level of detail in the payment application.
- E. No progress payment made to the Contractor or its sureties will constitute a waiver of the liquidated damage under Article 12.05 of these Specifications.

**21.03. Progress Payment Retention**

- A. No Special Requirements. The Contractor's attention is directed to Standard Provisions Article 6.02.04. Payment.

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## **SECTION 22. CONTRACT CLOSEOUT**

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### **22.01. Project Completion and Acceptance**

#### **22.01.01. Use Before Acceptance**

- A. Should the District elect to partially occupy or use portions of the Work prior to Acceptance, the Contractor shall execute and submit to the Engineer a completed Use Before Acceptance Warranty form provided below. The Contractor must perform final cleaning as described in Article 11.04. Final Cleaning for those portions of the Work prior to their being so occupied or used.

#### **22.01.02. Milestone Completion Preliminary Final Inspection**

- A. The District shall accept the work performed under milestone No.1, before the contractor is allowed to start on work specified under milestone No. 2.

### **22.02. Guarantee and Guaranty Bond**

- A. The Contractor's attention is directed to Standard Provisions Article 11.02. Guaranty Bond.

### **22.03. Training**

- A. No Special Requirements.

#### **22.03.01. General Requirements**

- A. No Special Requirements.

#### **22.03.02. Submittals**

- A. No Special Requirements.

### **22.04. Testing and Facility Start-Up**

- A. This Article includes requirements for Materials, Equipment, instrumentation, structure, and process system testing and start-up.

#### **22.04.01. Testing and Start-Up Overview**

- A. Certain portions of the Work will be modified and completed at scheduled interim dates before completion of the Project. Consequently, testing and start-up activities shall take place throughout much of the duration of the Work.
- B. See other provisions in these Specifications for detailed testing requirements that shall be completed in the framework of the testing and start-up overview described herein.
- C. The general sequence of testing and start-up will proceed as follows. Variations to this general sequence may be authorized by the Engineer where necessary to

meet constraints described in these Contract Documents and permits from authorities having jurisdiction.

1. General construction testing. For example: soils compaction and moisture content, welding, concrete properties, coating application, carrier piping pressure, dielectric flange isolation, double containment piping pressure, etc.
  2. Special construction testing. For example: air testing, video inspection of underground pipe, etc.
  3. Submittals. All submittals relevant to installation practices, Equipment, piping, anchorage calculations, instrumentation, Material, and testing plans have been submitted to the Engineer and have received favorable review status.
  4. Mechanical valve testing. Individual inspection and testing to ensure and demonstrate that valves operate properly and reliably. Equipment that is capable of automatic or remote operation shall be tested first in manual mode. Manufacturer's representatives shall confirm that all Equipment and valves are properly installed before first operation and shall conduct/oversee the initial operation and testing. Limit switches shall be set and adjusted on all valves so equipped. Set points on all valves shall be confirmed and reset as directed by the Engineer.
  5. Instrumentation wiring ring out. Test each conductor, and other wiring components for proper installation, termination, and identification.
  6. Loop tuning. Complete the tuning of all loops.
  7. Prior to system commissioning testing, the Contractor shall submit the Use Before Acceptance Guaranty in accordance with Article 11.02.03. Use Before Acceptance Guarantee. The Project guaranty period for the Work starts on the date of the Notice of Completion of Contract and Acceptance of Work.
  8. Removal of replaced system. In some cases, after the successful completion of the system commissioning test, a replaced system exists that is subsequently removed.
- D. Contractor is required to maintain equipment through the duration of various stages of testing and start-up.

**22.04.02. Water Tightness Testing**

- A. No special requirements.

**22.04.03. Operational Readiness Testing**

- A. No special requirements.

**22.04.04. Functional Testing**

- A. No special requirements.

**22.04.05. System Commissioning Testing**

- A. No special requirements.

**22.04.06. Submittals**

- A. Contractor shall receive a favorable review of a testing and start-up submittal at least two (2) weeks prior to the first scheduled testing and start-up activity for a new facility or an existing process system. Submittal shall include the following documentation:
  - 1. Individual testing plans for each major new facility and modified existing process system. Testing plans should summarize all planned Work leading to the start-up of each modified and new process system. As a minimum, testing plans shall be submitted for:
  - 2. Blank test forms and checklists showing data to be recorded and checkout procedures prior to each test, whether factory or on-site.

**22.05. Submission of Closeout Items**

- A. At completion of construction and prior to issuance of the Project Completion letter by the Engineer, the Contractor shall deliver to the Engineer the closeout Documents described in Standards Provisions Section 11 Contract Closeout.

**22.06. Final Cleaning**

- A. Structures that are to be cleaned by a professional industrial janitorial service as specified in Standard Provisions Section 11 Contract Closeout include:
  - 1. West Filter Gallery
  - 2. East Filter Gallery



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## **TECHNICAL PROVISIONS**

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**PART 1      GENERAL**

**1.01    SUMMARY**

- A.     The work specified in this Article includes payment for bonds and insurance and all preparatory work and materials necessary for construction operations, including, but not limited to those necessary for the movement of personnel, equipment, supplies, and incidentals to the project sites; for the establishment and removal of field offices, temporary buildings, and other temporary facilities necessary for work on the project; cleanup of the site; other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site; and other work as specified in these Specifications.
  
- B.     Demobilization tasks will consist of work and operations at the conclusion of construction including, but not limited to, those necessary for the removal of personnel, equipment, supplies, and incidentals from the project site; removal of temporary facilities; restore the staging area to its preconstruction condition or better, and all other work and operations that must be performed or costs incurred to conclude work on the various Contract items for the project. As part of the demobilization operations, the Contractor shall be responsible for leaving the project site in a clean state, free of all extraneous construction materials and impacts. This includes removal of all debris, and unused materials and equipment belonging to the Contractor or used during construction from the project site, areas adjacent to the project site, and access roads.

**1.02    REFERENCES**

- A.     Related Articles:
  - 1.      Article 14.03—Office Facilities
  - 2.      Article 14.06—Staging Area
  - 3.      Section 21—Payment Procedures

**1.03    SUBMITTALS**

- A.     As Required.

**1.04    MEASUREMENT AND PAYMENT**

- A.     Full compensation for furnishing all work and materials for Mobilization shall be included in the lump sum price bid for Bid Item entitled "Mobilization."
  
- B.     Refer to Article 21.01, Bid Items.

**PART 2      PRODUCTS (NOT USED)**

**PART 3      EXECUTION**

**3.01    GENERAL**

A.      The Contractor shall refer to the following articles:

1.      Article 14.03—Office Facilities
2.      Article 14.06—Staging Area

END OF ARTICLE

**PART 1        GENERAL**

**1.01    SUMMARY**

- A.     The work specified in this Article includes the removal of all existing objectionable materials over and adjacent to the areas to be graded, excavated, trenched, filled, or as otherwise shown on the Drawings and as specified in these Specifications.
- B.     The project area shall be cleared and grubbed only to the extent necessary to accommodate the work and in conformance with the notes and details shown on the Drawings and as specified in these Specifications.
- C.     All cleared material shall become the property of the Contractor and shall be disposed of off-site by the Contractor at the Contractor's expense and in accordance with applicable regulatory requirements.
- D.     The Contractor is advised that some work may require the removal and replacement of interfering landscaping including plants, ground cover, and irrigation systems. Damage to these facilities due to the Contractor's operation shall be repaired or replaced in kind by the Contractor to the satisfaction of the Engineer, and the area restored to a condition similar to, or better than, that existing before construction. Irrigation systems shall be replaced within 5 days of removal.

**1.02    REFERENCES**

- A.     Related Articles:
  - 1.       Article 4.10—Preservation of Property
  - 2.       Section 10—Environmental
  - 3.       Article 24.01—Excavation and Backfill
  - 4.       Article 23.03—Demolition

**1.03    SUBMITTALS**

- A.     Within 30 days after the first chargeable day, the Contractor shall submit copies of their clearing and grubbing plan. The Contractor's clearing and grubbing plan shall:
  - 1.       address all aspects of the clearing and grubbing effort.
  - 2.       provide descriptions, specifications, and quantities for all equipment.

3. describe materials and labor to be used.
4. provide a description of the procedural methodology.
5. provide a comprehensive schedule for all clearing and grubbing activities illustrating the Contractor ability to complete the work on schedule.

#### 1.04 QUALITY ASSURANCE

##### A. Regulatory Requirements:

1. Verify and comply with applicable regulations regarding those governing noise, dust, nuisance, drainage and runoff, fire protection, and disposal.

##### B. Pre-Construction Meetings:

1. Prior to the start of any clearing and grubbing work the contractor shall meet with the Engineer to discuss the order, method, and extent of the work to be performed.

#### 1.05 DELIVERY, STORAGE AND HANDLING

##### A. Waste Management and Disposal:

1. All cleared material shall become the property of the Contractor and shall be disposed of offsite by the Contractor, at the Contractor's expense and in accordance with applicable regulatory requirements.

#### 1.06 MEASUREMENT AND PAYMENT

- ##### A.
- Unless noted otherwise, full compensation for Work involved in complying with all requirements per this Article as shown on the Drawings, as specified in these Specifications, and as directed by the Engineer shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time shall be allowed or payment made.

### **PART 2 PRODUCTS (NOT USED)**

### **PART 3 EXECUTION**

#### 3.01 GENERAL

- ##### A.
- All existing utilities and facilities not specifically designated on the Drawings to be removed or relocated shall remain in their original condition and location undisturbed. Existing facilities which are to remain in place shall be protected in accordance with the provisions of Article 4.10, "Preservation of Property."
- ##### B.
- All trees, stumps, brush, bushes, roots, debris, and other unacceptable material shall be cut, grubbed, removed, and disposed of from areas to be occupied by pipelines, fills, conduits, engineered fills, and any other areas to be stripped. Stockpile areas shall be cleared before use.

- C. Areas outside the limits of clearing shall be protected and no equipment or materials shall be stored in or allowed to damage these areas.

### 3.02 EXAMINATION

- A. Examine site and verify existing conditions for beginning work.
- B. Prior to any tree trimming or tree removal, the Engineer shall review the requested trimming or tree removal. Approval of the Engineer shall be required before any trimming or removal is done.

### 3.03 PREPARATION

- A. Protect existing improvements from damage by site preparation work.
- B. Protect trees or bushes from damage by all construction operations by erecting suitable barriers, or by other means. Suitable barriers shall be placed at or beyond the drip lines of trees and bushes in the vicinity of the Work.
- C. If the Contractor proposes to remove trees which are not designated to be removed on the Drawings, the Contractor shall obtain written approval from the Engineer prior to tree removal.

### 3.04 SEQUENCES OF OPERATIONS

- A. Clearing:
  - 1. Clear areas where construction is to be performed and other areas as indicated on the Drawings, or specified in this Section, of fences, lumber, walls, stumps, brush, roots, weeds, trees, shrubs, rubbish, and other objectionable material of any kind which, if left in place, would interfere with proper performance or completion of the work, would impair its subsequent use, or form obstructions.
- B. Grubbing:
  - 1. From excavated areas: Grub stumps, roots, and other obstructions 3 inches or over in diameter to depth of not less than 18 inches below finish grade.
- C. Stripping:
  - 1. Strip the top 3-inch layer of surface soils from all areas to be occupied by structures, pipes and all areas to be excavated or filled. Avoid mixing the top layer with lower layers and remove it from the Site or stockpile it in areas on the Site if so indicated on the Drawings. Soil so stockpiled shall be free from brush, roots, trash, large stones, and other extraneous material and protected from erosion.



**3.05 RESTORATION**

- A. The Contractor is advised that some work may require the removal and replacement of interfering landscaping including plants, ground cover, and irrigation systems. Damage to these facilities due to the Contractor's operation shall be repaired or replaced in kind by the Contractor to the satisfaction of the Engineer, and the area restored to a condition similar to or better than that existing before construction. Irrigation systems shall be replaced within 5 days of removal. Payment for removal and replacement of interfering landscaping and irrigation systems shall be incidental and included in the bid price for the item of work requiring landscaping or irrigation system removal and replacement.

**3.06 DISPOSAL OF MATERIALS**

- A. All surface soils, tree trunks, roots, brush and other vegetation, conduits, concrete, construction materials, and other buried utilities which are cleared, grubbed, or stripped shall be hauled to a suitable landfill or offsite disposal site, in compliance with local and state laws.
- B. Burning of cleared and grubbed materials will not be permitted.

END OF ARTICLE

**PART 1      GENERAL**

**1.01    SUMMARY**

- A.    The work specified in this Article includes but not limited to demolishing, modifying, and disposing existing piping and accessories, pipe supports, bird netting, pavement, concrete and miscellaneous items as required for the construction of the improvements.
- B.    The work specified in this Article also includes the protection, support, and maintenance of buried and above grade utilities, site work facilities, roadways and pavements, and miscellaneous structures and items surrounding the demolition work free from damage or harmful effects.

**1.02    REFERENCES**

- A.    Related Articles:
  - 1.    Article 23.02—Clearing and Grubbing
  - 2.    Article 14.08—Salvaged Material and Equipment
  - 3.    Section 26.02—Roadway Restoration

**1.03    SUBMITTALS**

- A.    Submit documentation to the Engineer showing proposed start and finish dates, durations, and detailed descriptions of demolition work a minimum of 14 days in advance of such work. Include such work on all construction schedules.
- B.    If requested by the Engineer, provide documentation on recycling of construction materials and disposal locations of materials.

**1.04    MEASUREMENT AND PAYMENT**

- A.    Full compensation for furnishing all work and materials for demolition shall be included in the lump sum price bid for bid item entitled "demolition."
- B.    Refer to Article 21.01, Bid Items.

**PART 2      PRODUCTS (NOT USED)**

**PART 3 EXECUTION****3.01 PROTECTION**

- A. Protect all vegetation and landscaping except in areas designated for removal or within the footprints of new construction.
- B. Maintain free and safe passage for all personnel and the public at all times.
- C. Protect existing structures, utilities, equipment and adjacent work, which are to remain free from damage. Cut finish surfaces such as concrete, or metals by methods which will terminate or join work in a straight line at an appropriate point of division.
- D. Cease operations and notify the Engineer immediately if the safety of any structure or utility appears to be endangered. Take additional precautions to properly support such structure(s) and do not resume demolition operations until safety is restored.
- E. Utility locations shown on the Drawings are approximate and may vary from where they are shown. The Contractor shall contact Underground Service Alert (800-642-2444) and obtain field marking to determine the exact locations of utilities owned by agencies. Record, preserve and protect the field markings.
- F. Blasting and the use of explosives shall not be permitted for any demolition work. Burning of wastes is not permitted.
- G. Promptly repair any damage caused to facilities or landscaping by demolition operations as directed by the Engineer and at no additional cost to the District. The minimum quality of repair shall be equal to that which existed prior to the start of the Contractor's work.

**3.02 SCHEDULING**

- A. If required, perform location and marking of underground utilities and exploratory excavations (potholing) at least 30 days prior to the scheduled work activities in those areas. Report pothole results promptly. Identify conflicts determined by potholing to the Engineer in writing within 10 days of each exploratory excavation completion.

**3.03 SEQUENCE OF WORK**

- A. The sequence of demolition and the modifications of existing facilities shall be in accordance with the Standard and Special Provisions.
- B. The Contractor shall mark all facility components to be demolished in advance of demolition for the Engineer's review. The purpose of this requirement is to provide an opportunity to avoid unnecessary or erroneous demolition. The Contractor remains responsible for demolition as shown on the Drawings and as specified in these Specifications.

- C. The Contractor shall schedule a meeting and meet with the Engineer at the site of the proposed demolition in advance of the start of demolition. Contractor shall ensure that subcontractors are present if necessary or requested by the Engineer.

#### 3.04 DISPOSAL OF MATERIAL REMOVED BY DEMOLITION WORK

- A. All materials removed by demolition work shall become the property of the Contractor as soon as actual demolition is initiated unless specifically identified to be salvaged by the District. The Contractor shall remove demolition materials as soon as possible but in no case shall Contractor store materials removed by demolition on the project site longer than 10 working days. Demolition materials other than concrete and soil shall be properly contained in covered waste disposal bins. Concrete and soil shall be tightly stockpiled and covered until removal.
- B. The Contractor shall properly dispose of all Regulated and Non-regulated materials in accordance with all applicable Federal, State and Local laws, ordinances and regulations.

#### 3.05 DEMOLITION MATERIALS RETAINED BY THE DISTRICT

- A. The District reserves the right to retain ownership of miscellaneous materials and pieces of equipment immediately prior to demolition. Such items may include, but is not limited to piping, pipe accessories, instrumentation equipment, valves, and miscellaneous metals.
- B. During construction, the Engineer shall inform the Contractor of which materials and/or equipment the District wishes to retain. Contractor shall package, label, and transport said materials to a specified location.
- C. Contractor's attention is directed to Article 14.08, "Salvaged Materials and Equipment," of the Special Provisions.

#### 3.06 REMOVAL OF MECHANICAL FACILITIES AND EXISTING PIPING

- A. Mechanical facilities removal includes, but are not limited to, the dismantling, preparation, and removal of existing piping and valves, fixtures, supports, anchorages, and other appurtenances as required for the completion of the work.
- B. Remove all anchor bolts, screws, supports, studs, rails, and other fastening devices that cannot be re-used or not shown in the plans to be re-used or utilized are remaining after mechanical facilities are removed shall be removed. In the case of such cast devices fastening into concrete, the concrete shall be chipped back one (1) inch and the device shall be cut below the plane of the finished surface. The area shall be patched with non-shrink grout and finished to match the surrounding surface.
- C. Removal work includes the plugging and sealing of wall, floor, ceiling, roof, and partition penetrations created by the removal of mechanical facilities. Plugging shall be completed using materials identical to the structural element and finish

materials. Plugs shall be coated using materials compatible to the existing coatings. Generally, plugging and sealing of penetrations are not individually shown on the Drawings.

- D. Existing piping which will attach to new piping shall be cut at the appropriate point which will allow the new piping to properly join, align, and be secured. New fittings, pipe, supports, and incidentals shall be provided to make up the connection or modification.

### 3.07 REMOVAL AND ABANDONMENT OF PIPE

- A. Buried and above ground piping shall be removed as noted on the Drawings or as specified by the Engineer.
- B. Where applicable, remove loose or broken concrete and repair in kind.

### 3.08 CLEAN-UP

- A. The Contractor shall remove from the site all debris resulting from the demolition operations as it accumulates. Upon completion of the immediate demolition work, the Contractor shall thoroughly clean each area, including dusting, vacuuming, and sweeping.
- B. Additionally, in the generator blower building and filter galleries the Contractor shall sweep, dust, and remove all debris at the end of each working day.

END OF ARTICLE

**PART 1      GENERAL**

**1.01    SUMMARY**

- A.    Excavation, backfill, trench excavation, underground utility construction, grading, backfilling and compacting, including but not necessarily limited to: excavation for conduits, pipes and paving; backfilling and fill; import of fill; disposal and stockpiling of waste and surplus materials; and all related work.
- B.    Trench excavation shall include the saw cutting and removal of pavement and other such hard scape materials.
- C.    Disposal of Excavated Soils: All excess backfill materials or excavated materials not acceptable for backfill shall become the property of the Contractor, shall be removed from the project site, shall be tested by a certified laboratory and disposed of in accordance with all applicable regulations, unless otherwise specified in these Specifications. See Article 10.04.03—Hazardous Material Investigation Report for “Soil Quality Testing Reports.”

**1.02    REFERENCES**

- A.    Related Articles
  - 1.    Article 24.03—Demolition
  - 2.    Article 24.16—Shoring and Bracing
  - 3.    Article 26.02—Roadway Restoration
- B.    California Department of Transportation (CalTrans)
  - 1.    Standard Specifications Latest Revision
- C.    American Society of Testing and Methods (ASTM)
  - 1.    ASTM D 698—Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort
  - 2.    ASTM D1556—Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
  - 3.    ASTM D 1557—Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
  - 4.    ASTM D 2487—Standard Practice for Classification of Soils for engineering Purposes (Unified Soil Classification System)

5. ASTM D6938—Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
6. ASTM D4318—Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

#### 1.03 SUBMITTALS

- A. The Contractor shall submit to the Engineer reports of tests of individual materials to indicate that the materials meet these specifications, prior to the materials being used in the Work. This requirement includes native or existing soils and materials which are proposed for use under any classification as listed in Part 2 herein.
  1. All material tests shall be in accordance with applicable ASTM standard test specifications listed in references section above.
- B. Submit to the Engineer for review the proposed methods of construction, including excavation, filling, compaction, and backfilling for the various portions of the Work. The Contractor shall remain responsible for the adequacy and safety of the methods.
- C. Submit the source and soils data for off-site sources of fill materials.
- D. Provide soil samples for testing by the Engineer if requested.
- E. Submit all exploratory excavation data as it is collected.
- F. Prior to commencement of any work, the Contractor shall submit complete calculations, and design drawings, showing a plan layout and shoring detail of all shoring systems for the Engineer's review. The calculations and Drawings will be signed and stamped by civil or structural engineer registered in State of California. Construction shall not proceed without the Engineer's review of the Contractor's calculations and Drawings.

#### 1.04 QUALITY CONTROL AND ASSURANCE

- A. The District may request additional testing to be performed by an independent testing laboratory for his guidance and quality assurance of the Work. Payment for such tests will be the responsibility of the District. Testing by the District is for the sole benefit of the District and shall not be considered a substitute for the specified testing by the Contractor. The Contractor shall cooperate with District's quality assurance testing work. The Contractor shall backfill quality assurance test areas at the Contractor's expense. The District may test any lift of fill at any time, location, or elevation.

#### 1.05 EXPLORATORY EXCAVATIONS

- A. The Contractor shall perform exploratory excavations to locate existing pipelines, pipeline elbows, and other utilities prior to trenching and general excavation. Reliable information on buried utilities is lacking in most areas. The objective of

the exploratory excavations is to reduce the number of field changes due to unforeseen alignment conflicts, allow design adjustments prior to submittal preparation, and aid the Contractor in completing new improvements.

- B. Exploratory excavations shall be completed using small diameter vacuum excavation equipment in improved areas wherever feasible to minimize disruption and collateral damage.
  - 1. Excavations in paved areas shall be backfilled and repaired with 4-inches of cold asphalt in asphalt concrete pavement areas and 4-inches of concrete in concrete pavement areas.
  - 2. Excavations on landscaped areas shall be repaired in-kind and protected from damage.
- C. At a minimum, the pipeline access locations shall have exploratory excavations performed on existing utilities shown in the Drawings and identified through Underground Service Alert (USA)-type field markings prior to any major excavations.

#### 1.06 DELIVERY AND STORAGE

- A. Excavated materials to be used for backfill may be deposited in stockpiles at points convenient for re-handling the material during the backfilling process. The location of stockpiles must be within the staging areas or other locations coordinated and submitted by Contractor. The location of stockpiles is subject to the approval of the District.

#### 1.07 MEASUREMENT AND PAYMENT

- A. Trench Excavation and Backfill:
  - 1. The volume of trench excavation includes that quantity of pavement, sidewalk, and curb and gutter which must be removed as described in these Specifications and as shown on the Drawings. No distinction will be made between earth, rock, pavement, sidewalks, curb and gutter, structures, or any other material. No payment will be made for overexcavation or re-excavation unless unsuitable material is encountered and the Engineer directs the Contractor to remove the unsuitable material.
  - 2. The measurements for the removal and replacement of quantities of unsuitable trench subgrade material shall be made in the field by the Engineer.
  - 3. No measurement will be made for the removal and restoration of concrete sidewalks, wheelchair ramps, driveway aprons, and curbs and gutters. Area excavated beyond designated limits shall be restored in accordance with the applicable provisions of these Specifications at the Contractor's expense.



4. Payment for removal and replacement of unsuitable subgrade material shall be considered as incidental to the work and shall be included in the item of work that requires Trench Excavation and Backfill and no additional payment shall be made therefore.
  5. Unless noted otherwise, full compensation for Work involved in complying with all requirements per this Article as shown on the Drawings, as specified in these Specifications, and as directed by the Engineer shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time shall be allowed or payment made.
- B. Refer to Article 20.01.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS – GENERAL REQUIREMENTS**

- A. All sieve sizes referenced to are U.S. Standard sieve size unless otherwise noted. All percentages for amount passing a certain sieve are shown as a percentage of the total sample's dry weight.
- B. All materials noted herein shall have a maximum of one percent (1%) expansion when performed on a sample remolded to 95 percent of maximum ASTM D698 dry density and 2 percent below optimum moisture under a 100 pounds per square foot (psf) surcharge.
- C. In all cases where Caltrans Standard Specifications are referenced, references contained therein to measurement and payment does not apply.
- D. Materials shall not be corrosive, contain hazardous materials, debris, or vegetation, or be by-products of mineral mining, glassmaking, or other manufacturing processes.

### **2.02 FILL/BACKFILL AND TRENCH BACKFILL MATERIAL, STRUCTURAL AND NON-STRUCTURAL AREAS**

- A. This class of material shall: (1) have an organic content less than 3 percent by volume; (2) have all lumps or rocks less than 4 inches in any dimension; (3) have not more than 15 percent larger than 2.5 inches in the greatest dimension; (4) be predominantly granular; (5) have a liquid limit less than 40; and (6) have a plasticity index equal to or less than 12.

### **2.03 PIPE BEDDING**

- A. Pipe bedding shall consist of washed inert natural sand conforming to the requirements of ASTM C33.

## 2.04 AGGREGATE BASE COURSE

- A. Aggregate Base shall be Class 2, 3/4-inch maximum Aggregate Base in conformance with Section 26-1.02B, Class 2 Aggregate Base, of the State Specifications.

## PART 3 EXECUTION

### 3.01 GENERAL

- A. The work performed under this Section shall be constructed to the lines, grades, elevations, slopes and cross sections shown on the Drawings and as specified. The Contractor shall be responsible for setting and maintaining grade stakes. Graded surfaces shall present a neat, uniform appearance upon completion of the Work.
- B. It shall be the Contractor's responsibility to maintain adequate safety measures and working conditions and to take measures necessary during the performance of the Work to protect areas affected by the Work.
- C. The Contractor shall be solely responsible for structural safety and providing shoring systems as indicated as required in accordance with Article 24.16, "Shoring and Bracing," of these Specifications.
- D. Inconvenience to traffic and work by others shall be avoided as much as possible.
- E. The Contractor shall provide the necessary storm water pollution prevention measures so as to prevent siltation of waterways and drainage courses.
- F. Blasting or other use of explosives for excavation shall not be permitted.
- G. No excavation shall be left open during periods when the Contractor is not at the site of Work without proper barricades, trench plates, and other protections as otherwise specified and as authorized by the Engineer.
- H. The Contractor shall establish existing (original) and final grades along the pipeline alignment. Unless otherwise shown on the Drawings, final grades shall be the same as existing grades.

### 3.02 PREPARATION OF GRADE

- A. Loose materials shall be removed from all cut surfaces. Exposed soils shall be scarified to a minimum depth of 6 inches and moistened (dried) to 2 to 3 percent above optimum moisture content, and re-compacted to a minimum of 95 percent relative compaction based on ASTM D1557 prior to placing any required backfill or base course.
- B. The bottom of all excavations shall be rendered firm and dry (except as noted).

## 3.03 COMPACTION

- A. Compaction of backfills, subgrade soils, aggregate base, aggregate subbase, and other soil materials shall be accomplished to the following density criteria in horizontal lifts of thicknesses noted, or if not noted, as compatible with the compaction equipment used.

Material	Minimum Percent Relative Compaction (ASTM D1557)	Maximum Uncompacted Lift Thickness (Inches)
Subgrade soil (minimum of 12-inch depth) below roads, parking lots, sidewalks, foundation and slabs	95	8
Base and subbase fill for pavement support:		
More than 3 feet below finish grade	90	8
Less than 3 feet below finish grade	95	8
Base course below asphalt or concrete pavement	95	8
Utility bedding and embedment	90	6
Non-structural backfill in utility trenches	90	6
Structural backfill in utility trenches	95	6
Non-structural fills/backfills	90	8
Structural fills/backfills	95	8

- B. Fill and backfill soils shall be aerated and placed at moisture content of 2 to 3 percent over optimum. Flooding or ponding of any fill or backfill materials and jetting of materials will not be permitted.
- C. No placement or compacting shall be done when either the previously placed or the new materials are too wet from rain or excess application of water to obtain the compaction specified. At such time, work shall be suspended until the previously placed and/or new materials have dried sufficiently to permit proper compacting.
- D. Uniform compaction of embankment slope faces may be developed either by (1) overbuilding the embankments and then trimming to final slope configuration, or (2) by close attention to slope face rolling and compaction which should be accomplished after each 4 feet of vertical embankment has been built.

## 3.04 EXCAVATION BELOW GRADE

- A. If the Contractor excavates below grade through error or for its own convenience, the Contractor may be directed by the Engineer to replace the over-excavated material with structural fill/backfill as acceptable to the Engineer. The work of excavating below grade and furnishing and placing the acceptable material shall be performed at no additional cost to the District.

## 3.05 MISCELLANEOUS EXCAVATION

- A. The Contractor shall perform all the remaining miscellaneous excavation. The Contractor shall make all excavations necessary to permit the placing of landscaping, for constructing roadways, walks, slabs, or any other miscellaneous earth excavation required under this Contract.

## 3.06 TRENCH EXCAVATION, EMBEDMENT, AND BACKFILLING

- A. Excavation for all trenches required for the installation of pipes shall be made to the depths and widths indicated on the Drawings. Safe and suitable access shall be provided for all excavations in accordance with CAL-OSHA. The Contractor shall render the bottom of the excavations firm and dry. It is the Contractor's responsibility to support or temporarily relocate, and protect existing utilities across trenches and other narrow structural excavations.
- B. Rock and/or boulders shall be removed to a minimum clearance of 6 inches around the bottom and sides of all the pipes being installed.
- C. Pipes are to be installed in bedding. The trench may be excavated by machinery to or just below the designated subgrade, provided that the material remaining in the bottom of the trench is no more than slightly disturbed.
- D. Pipe Bedding, Embedment, and Backfill
  - 1. After completion of the trench excavation and proper preparation of the trench bottom, bedding material shall be placed and compacted on the trench bottom for support under the pipe. Bell holes and similar excavations for appurtenances shall be hand excavated. All pipe shall be installed in such a manner as to ensure full support of the pipe barrel over its entire length and under appurtenances.
  - 2. Material for bedding and embedment shall be pipe bedding as specified herein unless otherwise shown on the Drawings.
  - 3. Laying and joining of pipe shall be as specified for the individual type of pipe. After joining flexible pipe it may be adjusted to line and grade as noted on the Drawings.
  - 4. As soon as practicable after pipe has been installed and joined, embedment material shall be placed around and over the pipe to the limits as noted on the Drawings. It shall be placed with equipment and by hand, and compacted by suitable hand-operated equipment, in lift thicknesses as defined above, paying particular attention to bell holes, sling holes, and elimination of voids and to ensure uniform support for the pipe. All bedding and embedment shall be compacted to not less than 90 percent relative compaction (ASTM D1557) unless otherwise shown on the Drawings.
  - 5. All pipe shall be embedded to a minimum height of 12 inches over the top of the pipe. The pipe bedding material shall be brought up in hand

operated equipment compacted lifts not exceeding the thickness specified in Paragraph 3.03A, approximately equal on each side of the pipe. The tamping shall be done so as to not disturb or damage the pipe or fittings.

6. Jetting or flooding shall not be permitted.
- E. The Contractor shall meet the following criteria when his/her installation method includes the use of a trench "box":
  1. When installing flexible pipe (PVC, steel, ductile iron, corrugated metal pipe, etc.), the bottom of the box shall not extend below mid-diameter. This is to prevent loss of soil between the box and the pipe bedding which could result in excessive deflection of the installed pipe.

### 3.07 BACKFILLING WITH STRUCTURAL FILL/BACKFILL

- A. Place structural fill/backfill in layers having a maximum thickness and compaction effort as specified in Paragraph 3.03A.
- B. Backfilling work within 8 feet of structures shall be completed using compaction equipment weighing less than 1,000 pounds.

### 3.08 DISPOSAL OF MATERIALS

- A. Excavated material shall not be stacked on any excavation or over buried pipes or structures. Inconvenience to traffic and work by others shall be avoided as much as possible. Excavated material shall be segregated for use in backfilling as structural fill/backfill, non-structural (fill/backfill, trench backfill material, or for off-site disposal).
- B. Surplus excavated material shall be disposed of by the Contractor off the work site. Any costs associated with the hauling and disposal of this surplus material shall be borne by the Contractor. If too much suitable fill material is removed from the site, the cost of bringing it back will be the responsibility of the Contractor.
- C. Material which is unsuitable for fill, including rock, cemented materials, boulders, broken concrete, asphalt and other materials, shall be removed and disposed of at the Contractor's expense at a waste disposal or landfill site conforming to all local, State, and Federal regulations.

### 3.09 FINISH GRADING

- A. Finish grading in preparation for placing of paving, sod, walks, slabs, and appurtenances shall be performed at all places that are indicated on the Drawings, to the lines, grades, and elevations shown and otherwise as acceptable to the Engineer. During the process of grading, the subgrade shall be maintained in a well-drained condition. Finish grading for areas underlying paving, walks, structures, and slabs on grade shall be to plus or minus 0.04 feet of the designated grade.

- B. If at the time of grading it is not possible to place any material in its proper section of the permanent embankment, fill, or excavation, such material shall be stockpiled for later use in designated staging areas. No extra payment will be made for the stockpiling or double handling of excavated material.
- C. Stones or rock fragments larger than 3 inches in their greatest dimensions will not be permitted in the top 6 inches of the finished subgrade of fills or embankments.
- D. In cuts, all loose or protruding rocks or boulders on the back slopes shall be barred loose or otherwise removed to line or finished grade of slope. All cut and fill slopes shall be uniformly dressed to the slope, cross-section and alignment shown on the Drawings.

### 3.10 SOIL TESTING/QUALITY ASSURANCE

- A. Where referred to in the Specifications, "compaction" or "relative compaction" shall refer to in-place dry density of soil expressed as a percentage of the maximum dry density of the same material as determined by ASTM D1557.
- B. Prior to the general placement of any materials and during such placement, the Engineer will select areas within the limits of any work for testing the degree of compaction obtained. Contractor shall pay for soil tests to be made by an independent testing laboratory in accordance with article 19.02.08. The Contractor shall cooperate fully in obtaining the information desired. The frequency of testing shall be as determined and signed by the Engineer. Testing shall be in accordance with the ASTM references listed above.
- C. If test results are unsatisfactory, all costs involved in correcting the deficiencies in compacted materials shall be borne by the Contractor without additional cost to the District. Costs of retesting and reinspection required as the result of inadequate, insufficient, or incomplete work by the Contractor shall be deducted from the Contract amount.

END OF ARTICLE

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**PART 1 GENERAL**

**1.01 SUMMARY**

- A. The Contractor shall provide temporary shoring necessary to support the sides of the excavation and trenches and to stabilize or prevent movement of the existing adjacent roadway, and adjacent structures. The shoring system shall be designed to prevent limited ground movement as specified in this Article, including movements at existing walls and slabs, in order to prevent and damage to the adjacent roadway, underground utilities, or structures; to prevent delay of the work; and to protect workers' life and safety during construction. The Contractor shall evaluate and design the appropriate shoring system; install the appropriate shoring system; monitor movements of adjacent structures and roadway grades; report results of the monitoring; and maintain temporary shoring as required by CAL/OSHA and other applicable governmental regulations and agencies.
- B. Falsework and vertical shoring shall be designed and constructed in accordance with the requirements in Section 48 and Section 51-1.03 of the State Specifications and Section 17.17 of the Construction Safety Orders, Title 8, California Administrative Code, and as modified herein.
- C. The Contractor's attention is directed toward Article 8.05, "Excavation Safety Plans," Article 4.10, "Preservation of Property," Article 4.11, "Contractor's Responsibility for the Work," and Article 16.05, "Rights of Way," of these Specifications, and Section 7-1.02K(6), Occupational Safety and Health Standards of the State Specifications.
- D. This Section requires the Contractor to employ California registered professional engineers and land surveyors.
- E. All excavated air wash pipe access points require an excavation shoring protection system.

**1.02 REFERENCES**

- A. Related Articles:
  - 1. Article 8.05—Excavation Safety Plan
  - 2. Article 24.01—Excavation and Backfill
- B. American Institute of Steel Construction, Inc. (AISC):
  - 1. Manual of Steel Construction Allowable Stress Design



- C. California Code of Regulations (CCR):
  - 1. Title 8—Industrial Regulations
- D. California Labor Code (CLC).
- E. Department of the Navy Naval Facilities Engineering Command (NAVFAC):
  - 1. NAVFAC Design Manual 7.2—Foundations and Earth Structures
  - 2. NAVFAC Design Manual 7.3—Soil Dynamics and Special Design Aspects
- F. International Conference of Building Officials (ICBO) and State of California:
  - 1. California Building Code (CBC)
- G. State of California Department of Transportation (CALTRANS):
  - 1. CALTRANS California Trenching and Shoring Manual

### 1.03 SYSTEM DESCRIPTION

- A. Where General Engineering Design Practice is specified, provide drawings and signed calculations and have the design performed by a civil or structural engineer registered in the State of California:
  - 1. Provide design calculations that clearly disclose assumptions made, criteria followed, and stress values used for the materials being used.
  - 2. Furnish references acceptable to the Engineer substantiating the appropriateness of design assumptions, criteria, and stress values.
- B. Design and Qualifications Requirements:
  - 1. General:
    - a. Design the means for safe and stable excavations in accordance with local, State, and Federal law and for more conservative practices specified herein.
    - b. Design steel members in accordance with the California Building Code and the AISC Manual of Steel Design.
    - c. Design shoring involving materials other than steel in accordance with California Building Code.
    - d. When electing to design with material stresses for temporary construction higher than allowable stresses prescribed in the Manual of Steel Construction and the California Building Code, increase in such stresses shall not exceed 10 percent of value of prescribed stresses.

- e. Generally acceptable references for the design of shoring and excavations are as follows:
  - (1) CALTRANS California Trenching and Shoring Manual
  - (2) NAVFAC Design Manual 7.2
  - (3) NAVFAC Design Manual 7.3
- C. Excavation Support and Protection Performance Requirements:
  - 1. General:
    - a. Support faces of excavations and protect existing structures and improvements in vicinity of excavations from damage and loss of function due to settlement or movement of soils, alterations in groundwater level caused by such excavations, and related operations.
    - b. Additional Requirements:
      - (1) Nothing herein shall substitute or diminish the obligations of Contractor for the furnishing of a safe place of work pursuant to provisions of the Occupational Safety and Health Act of 1970 and its subsequent amendments and regulations and for protection of the Work, structures, and other improvements.
  - 2. Provide safe and stable excavations by means of sheeting, shoring, bracing, and other means and procedures, such as draining and recharging groundwater and routing and disposing of surface runoff, required to maintain the stability of soils and rock.
  - 3. Provide support for trench excavations for protection of workers from the hazard of caving ground.
  - 4. Provide shoring whenever any of the following conditions exist:
    - a. For all excavations related to the air wash pipe access.
    - b. Where indicated on the Drawings.
    - c. Where required to keep all access roads and access to structures continuously open. All access roads and access to structures shall be maintained open except as noted otherwise.
    - d. Where otherwise required by law.
  - 5. For safe and stable excavations, use appropriate design and procedures for construction and maintenance to minimize settlement of supported

ground and to prevent damage to structures and other improvements, including:

- a. Using stiff support systems.
- b. Following the appropriate construction sequence.
- c. Preventing soil loss through or under support system.
- d. Providing surface runoff collection, routing, and discharge away from excavations.
- e. Where dewatering by well points is necessary, recharge groundwater as necessary to prevent settlement in area surrounding excavation.
- f. Beneath excavation, maintain groundwater levels at least 3 feet beneath bottom of excavation.
- g. Not applying shoring loads to existing structures and other improvements.
- h. Not changing existing soil loading on existing structures and other improvements.
- i. Where shoring is used, horizontal and vertical settlement shall be limited to ½ inch. Fill voids between shoring and cuts to prevent cave-in or surface cracks.

#### 1.04 SUBMITTALS

- A. It is the Contractor's sole responsibility to design a shoring system and falsework, where required. The District shall not be liable for use of the shoring system and falsework. The shoring plan and falsework shall be designed by a registered Civil or Structural Engineer in the state of California and shall include supporting design calculations, earth pressure diagrams, and a plan for shoring and falsework installation. The shoring plan and falsework plan shall be submitted to the Engineer in accordance with Article 8.05, "Excavation Safety Plans," of these Specifications.
- B. Prior to the installation of any shoring or falsework, the Contractor shall submit detailed design calculations, and working drawings, for showing a plan layout and detail of all shoring and falsework systems for the Engineer's review. The plan shall include shoring and falsework locations, details of control points, and method of measurement with initial elevations and locations. Copies of field notes pertinent to the shoring monitoring, which show the just-after or baseline shoring location and condition, and subsequent required measurements and relative movements, shall be furnished to the Engineer. The calculations and Drawings shall be signed by a registered civil or structural engineer in the State of California. Construction shall not proceed without the Engineer's review and approval of the Contractor's calculations and Drawings, as well as, the shoring

plan. Submittals shall be in accordance with Article 8.05 and Article 7.01, of these Specifications.

- C. Review by the Engineer of the calculations and Drawings or inspection performed by the Engineer will in no way relieve the Contractor of full responsibility for the sheeting, shoring, falsework and/or bracing systems.

#### 1.05 MEASUREMENT AND PAYMENT

- A. Unless noted otherwise, full compensation for Work involved in complying with all requirements per this Article as shown on the Drawings, as specified in these Specifications, and as directed by the Engineer shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time shall be allowed or payment made.
- B. Any delays to the schedule, as a result of a shoring system that does not meet the specified performance requirements, and for resubmitting a revised shoring system, shall be at the Contractor's sole expense.
- C. Refer to Article 21.01—Bid Items.

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### 3.01 TRENCHING AND EXCAVATION SAFETY PLANS

- A. Develop, provide, and implement trench excavation and excavation safety plans as required by the California Labor Code, Construction Safety Orders, and other relevant law.

##### 3.02 INSTALLATION AND REMOVAL

- A. Install the means for providing safe and stable excavations.
- B. All shoring shall be removed by completion of the Work unless otherwise noted. Exceptions include rock anchors and soil nails that are at least 5 feet below existing and proposed underground infrastructure. Select shoring system and method of removal which will minimize the creation of voids and the creation of settlement. To prevent settlement caused by pulling shoring, fill voids with sand, pea gravel, or pressure injected grout if specifically approved by the Engineer. The methods used shall prevent settlement.

##### 3.03 MAINTENANCE

- A. Where loss of soil occurs, plug gap in shoring and replace lost soil with compacted structural fill, Class 2 aggregate base, or low-density concrete backfill material.

- B. Shoring shall be inspected no less frequently than weekly and needed repairs shall be completed as soon as required due to safety and the potential for damage.
- C. The Contractor shall provide shoring design calculations as necessary to specify the maximum allowable ground movement near the top facing and ground surface behind the temporary excavation support. Where measurements and observations indicate the possibility of failure or excessive movement of excavation support, or damage to existing structures and utilities, take appropriate action immediately. Appropriate action by the Contractor shall include, but not be limited to, placement of additional excavation supports, additional shoring design calculations, exploratory excavations, expediting work to complete and backfill excavations, repair of damage to existing structures and utilities, soil stabilization, greater ground and surface water control, and associated work.
- D. Movement of existing structures and utilities (due to nearby work by the Contractor) equal to or greater than 0.02 feet in any direction is considered excessive and damage, as is distress in piping or electrical conduits, shifting of openings (e.g., doors, windows), structural cracking, the creation of leaks from groundwater, surface water, or rainfall, and similar defects. In addition, observed movement in any direction near the top facing and ground surface behind the excavation supports equal to or greater than the specified allowable movement is also considered excessive and damage.

END OF ARTICLE

**PART 1      GENERAL**

**1.01    SUMMARY**

- A.    Asphaltic concrete (AC) pavement for roadways, parking areas, re-surfacing, ramps, grade adjustments, and other AC pavement replacement.
- B.    New asphaltic concrete pavement sections shall be slurry sealed, tie into existing pavement sections and deemed acceptable by the Engineer.
- C.    Removal, preparation, and replacement or repair of existing asphaltic concrete pavement that is damaged by Contractor's operations during the construction of the Work.
- D.    Removal, preparation, and replacement of existing asphaltic concrete pavement required for potholing and other Work specified within this document.

**1.02    REFERENCES**

- A.    Related Articles:
  - 1.    Article 23.03—Demolition
  - 2.    Article 24.01—Excavation and Backfill
- B.    State of California, Department of Transportation (Caltrans):
  - 1.    Standard Specifications
- C.    American Society for Testing and Materials (ASTM):
  - 1.    D 1557—Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
  - 2.    D 5581—Standard Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus

**1.03    SUBMITTALS**

- A.    Submittals shall be in accordance with Article 7.05 regarding submittals.
- B.    Product information for aggregate materials, asphaltic concrete mix design, prime and tack coats, and slurry seal. Minimum information shall include source of aggregates and asphalt, asphalt content, proposed recycled asphalt products content, gradation, unit weight of mix design, gradation, air void content, oils used, stabilometer values, other test results, and method of placement needed for comparison with Caltrans Standard Specifications.

#### 1.04 MEASUREMENT AND PAYMENT

- A. Unless noted otherwise, full compensation for Work involved in complying with all requirements per this Article as shown on the Drawings, as specified in these Specifications, and as directed by the Engineer shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time shall be allowed or payment made. Refer to Article 21.01—Bid Item 6.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

- A. Prime (tack) coat shall be Type SC-70 liquid asphalt conforming to the requirements of the Caltrans Standard Specifications Section 39-4.02 and 93.
- B. Asphaltic concrete surfacing for roadways, parking areas, ramps, grade adjustments, and walkways shall conform to the requirements of Caltrans Standard Specifications Section 39. Mineral aggregate shall be Type B, 3/4-inch maximum gradation, medium class.
- C. Asphalt to be mixed with the aggregate shall meet the requirements of Caltrans Standard Specifications Section 92, AR 4000, steam-refined paving asphalt.
- D. Recycled asphalt products content shall be the lower of that allowed by Caltrans Standard Specifications and a maximum of 15 percent of the aggregate weight.
- E. Glass shall not be used.
- F. Slurry seal shall conform to Caltrans Standard Specification Section 37-03, Type I.
- G. Asphalt or asphaltic concrete component quantities not defined herein or specifically defined in the Caltrans Standard Specifications shall be those typically used for high quality pavement products.
- H. All finished asphalt concrete mixes shall be such so as to provide a smooth, solid surface, and shall be free of voids as determined solely by the Engineer.

### PART 3 EXECUTION

#### 3.01 GENERAL

- A. The Contractor shall conform to the requirements of Sections 37 and 39 of the State Specifications.
- B. The Contractor shall conform to the requirements of the governing agency's Technical Specifications and Standard Details. If the Drawings and Specifications should be found to be contradictory to the governing agency's Specifications in any part, the governing agency's requirements shall govern.

- C. Footpaths, sidewalks, asphalt, concrete curbs and gutters, and driveways shall be replaced in kind.

### 3.02 CUTTING PAVEMENT

- A. Existing asphaltic pavements to be removed shall be cut by a wheel cutter, clay spade, or other device capable of making a neat, reasonably straight and smooth cut without damaging adjacent pavement that is not to be removed.
- B. The existing pavement shall be saw cut and trimmed off a minimum of an additional six inches on each side of the trench or pavement joint after placement of required base course material and just prior to placement of asphaltic concrete for pavement replacement, and the trimmed edges shall be painted with a coating of prime coat immediately prior to constructing the new abutting asphaltic pavements.
- C. All removed asphaltic pavement materials and aggregate is the property and disposal responsibility of the Contractor.

### 3.03 PAVEMENT INSTALLATION

- A. The construction of pavements of asphaltic concrete shall conform to the requirements of the Caltrans Standard Specifications and upon completion; the pavement shall be true to grade and cross sections.
- B. The Contractor shall not pass equipment over any pipe, drain, utility line, or structure before it is protected by ample fill material, properly compacted. Any damage to such facilities shall be promptly repaired by the Contractor at no additional cost to the District.
- C. The subgrade shall be brought to the required grades and cross sections by grinding, excavating, filling, blading, and compacting as specified.
- D. Asphaltic concrete shall be constructed only when the surface is dry, when the atmospheric temperature in the shade is 40 degrees F and rising or above 50 degrees F if falling. No asphaltic concrete shall be placed when the weather is foggy or rainy or when the base on which the material is to be placed is in a wet or frozen condition.
- E. Base and subbase materials shall be bladed to a smooth surface and shall be compacted to 95 percent relative compaction as determined by ASTM D1557. Subgrade for pavement shall not vary more than 0.05 feet from the specified road grade.
- F. Asphaltic concrete shall be plant mix having a minimum overall thickness of 4 inches unless greater thicknesses are shown is required by authorities having jurisdiction or greater thicknesses are shown on the Drawings. Compact the asphaltic concrete to at least 95 percent of the relative compaction achieved by a specimen of the same mix design subjected to 75 blows per ASTM D5561.



- G. All existing asphaltic pavement and concrete surfaces to be paved over or against shall receive a tack coat at a minimum rate of 0.1 gallons per square yard.
- H. The total width of the accepted aggregate base material shall receive a bituminous prime coat at the minimum rate of 0.25 gallons per square yard. Application shall conform to Caltrans Standard Specifications. Adjacent ground, structures, gutters, curbing, and fencing shall be protected from spraying operations.
- I. When asphaltic concrete is to be applied over existing pavement and local irregularities (with only very minor damage) in the existing surface would result in a course of more than specified thickness, the surface of the existing pavement shall be brought to uniform contour by patching with asphaltic concrete, thoroughly tamped or rolled until it conforms with the surrounding surface, and a prime coat applied.
- J. When asphaltic concrete is to be applied over existing pavement, existing surfaces adjoining gutters and other permanent features shall be ground to create smooth transitions and to maintain surface water flow lines. Also grind existing asphaltic concrete as required where indicated or shown on the Drawings to maintain existing finish grades.
- K. Potholes and depressed areas in existing pavements to be overlaid with new asphaltic concrete shall be saw cut and completely removed subgrade and aggregate base course prepared, and patched with new asphaltic concrete before the installation of new pavement overlays.
- L. Spreading shall be as nearly continuous as possible. When asphaltic concrete is laid against vertical surfaces such as gutters, the face of the vertical surface shall be roughened for proper bonding, cleaned, and then painted with a light coating of asphalt cement or emulsified asphalt.
- M. All AC surface and AC base courses shall be machine-placed.
- N. At terminations of new surface courses, the asphaltic concrete shall be feathered into the existing surface over such a distance as may be required to produce a smooth riding transition. Existing pavements to be over-laid shall be ground or removed as required to avoid feather edges less than 1-inch in depth.
- O. Grind all edges with concrete swales and gutters to provide minimum 1-inch depth at transition and to maintain original drainage flow lines between new and existing surfacing unless otherwise noted.
- P. The finished surface shall be of uniform texture. When tested with a 10-foot straightedge laid on the surface parallel with the centerline of the road, the variation of the surface from the testing edge of the straightedge shall not be more than 1/4 inch (0.63 cm) except at grade changes.

- Q. All existing valve boxes, manholes, handholes, pull boxes, grounding boxes, vaults, and other flush utility features shall be raised or lowered to the new finish grade.
- R. The top of pavement shall match utility surface features such as valve boxes, corrosion protection test station boxes, electrical and telephone pull boxes, utility vaults, etc. Wherever possible drainage should be directed away from such utility structures, except drainage structures such as curb inlets and drop inlets.

### 3.04 ROADWAY SURFACE REMOVAL

- A. All pavement cuts shall be neat and straight to provide an unfractured and level pavement joint for bonding existing surfacing with pavement replacement. Pavement cuts shall be parallel or at right angles to the road or area centerlines. All cut edges shall provide clean, solid, vertical faces free from all loose material.
- B. All existing crushed aggregate and asphaltic concrete removed, and any excess new material shall be hauled away from the project site and legally disposed of by the Contractor.

### 3.05 RESURFACING

- A. In all existing pavement areas where the surface is removed, broken or damaged by Contractor's equipment or in which the ground has caved in or settled due to the installation of the improvements, or areas designated to be repaved, resurfaced, or modified, the surface shall be restored to the original grade by the Contractor.
- B. Prior to resurfacing, the existing surfacing shall be removed as provided above. All broken and jagged edges of the pavement edge shall be straight. Areas to be cut shall be indicated until these edges have been sawed. If during the initial removal of the existing pavement a method of removal was used which disturbed the adjoining pavement, or if during general construction operations the adjacent pavement was disturbed, then this adjoining pavement must also be removed and replaced. Where irregular surfaces are to be surfaced, existing pavement shall be cut parallel to the alignment of the pipe or to the centerline of the roadway. Asphaltic concrete pavement shall be saw cut to a minimum depth of two inches at a point not less than six inches outside the limits of excavation or the previous pavement cut (made by pneumatic tools), whichever limits are the greater. The additional surfacing so cut shall be removed and disposed of by the Contractor prior to resurfacing.
- C. Restoration of asphaltic concrete pavement shall be to the same section as the existing roadway/paved area or a minimum thickness of 5-inches, whichever is greater.
- D. Wherever asphaltic concrete pavement does not terminate against a curb, gutter, or another pavement, the Contractor shall provide a ground contact rated, pressure treated hem-fir, No. 2 or better, 2 by 6 header board, securely staked and backfilled in place.

**3.06 PAVEMENT MARKING REPAIR**

- A. All existing traffic markings and signs painted on areas which are covered with new or repair pavement (e.g., parking lot lines) shall be replaced in kind.

**3.07 SLURRY SEAL APPLICATION**

- A. Slurry seal shall be applied to all new asphalt concrete pavement surfaces and existing asphalt concrete pavement surfaces as shown on Drawings near the completion of all work, after all heavy construction traffic is finished.
- B. The slurry seal shall be applied in accordance with Caltrans Standard Specification 37-3.
- C. Protect curbs, gutters, structures, walls and all other areas from overspray.

**3.08 SPECIAL REQUIREMENTS**

- A. The restoration of all surfaces, as described herein, disturbed by the installation or repair to underground facilities shall be completed as soon as is reasonable and practical.

**3.09 CLEAN-UP**

- A. After all installation, repair and restoration of paving has been completed, all excess asphalt, dirt, rock and other debris shall be removed from the roadways. Adjoining curbs, gutters, structures, and other surfaces over-sprayed or splattered shall be cleaned of all asphalt concrete products.

**3.10 REPAIR OF PAVEMENT SURFACES**

- A. Following Project completion, the Contractor shall repair settled pavement over trenches, excavation, or backfill placed as part of this Work during the period of the warranty of the Work.
- B. All materials and labor required for the repair of paving shall be supplied by the Contractor and the work shall be done in a manner satisfactory to the Engineer.

END OF ARTICLE

**PART 1        GENERAL**

**1.01    SUMMARY**

- A.     The work specified in this Article includes furnishing and installing cement mortar grout, cement mortar for pipe joints, nonshrink grout, and nonshrink epoxy grout as shown on the Drawings and as specified herein.

**1.02    REFERENCES**

- A.     American Society for Testing and Materials (ASTM)

**1.03    SUBMITTALS**

- A.     Submit product data and manufacturer's application instructions.
- B.     Submit certification that the products are approved for use in contact with potable water per NSF 61.
- C.     Certification from the manufacturer that the grout (where required) is appropriate for the intended application.

**1.04    MEASUREMENT AND PAYMENT**

- A.     Unless noted otherwise, full compensation for Work involved in complying with all requirements per this Article as shown on the Drawings, as specified in these Specifications, and as directed by the Engineer shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time shall be allowed or payment made.

**PART 2        PRODUCTS**

**2.01    MATERIALS**

- A.     Cement Mortar grout shall consist of 1 part of Portland cement and 2 parts of clean sand by volume, with sufficient water to obtain workable consistency.
- B.     Cement Mortar for Pipe Joints shall be in accordance with Appendix A of AWWA C205.
- C.     Nonshrink grout (or nonshrink cementitious grout) shall meet or exceed the requirements of ASTM C1107, Grades B or C and CRD C-621. Grouts shall be Portland cement based and shall not contain expansive cement or metallic particles. The grouts shall exhibit no shrinkage when tested in conformity with ASTM C827. Approved products include Masterflow 928 by Master Builders, Inc.; Hi Flow Grout by the Euclid Chemical Co.; SikaGrout 212 by Sika Corp.; or equal. Nonshrink grout shall be delivered as preblended, prepackaged mixes

requiring only the addition of water. Maximum thickness of grout shall be 2 inches.

- D. Nonshrink epoxy grout shall be a three-component, 100-percent solids system consisting of epoxy resin, hardener, and blended aggregate. It shall have a compressive strength of 14,000 psi in 7 days when tested per ASTM D 695. Approved products include Ceilcote 648 CP by Master Builders Inc.; Five Star Epoxy Grout by U.S. Grout Corp.; Sikadur 42 Grout Pak by Sika Corp. High Strength Epoxy Grout by the Euclid Chemical Co. or equal. Nonshrink epoxy grouts shall be delivered as premeasured, prepackaged, three component systems requiring only blending as directed by the manufacturer.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Concrete surfaces to receive grout shall be clean and sound.
- B. Roughen concrete surfaces by chipping, sandblasting, or other mechanical means to ensure bond of the grout to the concrete. Remove loose or broken concrete.
- C. Remove all loose rust, oil or other deleterious substances from metal embedment or bottom of base plates prior to the installation of the grout.
- D. Concrete surfaces shall be washed clean and then kept moist for at least 24 hours prior to the placement of cementitious or cement grout. Upon completion of the 24-hour period, visible water shall be removed from the surface prior to grouting.
- E. Epoxy based grouts do not require the saturation of the concrete substrate. Surfaces in contact with epoxy grout shall be completely dry before grouting.
- F. Mix, apply, and cure products in strict compliance with the manufacturer's recommendations and this Article.

#### **3.02 QUALITY ASSURANCE / QUALITY CONTROL**

- A. Testing shall be in accordance with the manufacturer's recommendations.
- B. Testing of the grout shall be in accordance with the manufacturer's recommendations. Field testing shall not be conducted until the installation is certified as acceptable by the manufacturer. Field testing may not be required for all items.

END OF ARTICLE

**PART 1      GENERAL**

**1.01    SUMMARY**

- A.    This article includes the fabrication and installation of pipe fittings, couplings (flanged or unflanged), adapter couplings, pipe joints, all special sections and fittings and associated coatings and linings, as required. Unless otherwise noted, the word “piping” is intended to cover pipe, fittings, and appurtenances.
- B.    Unless otherwise shown or noted in this section, stainless steel pipe shall be Schedule 10 or match existing pipe to ASTM A 312-83 “Specifications for Seamless and Welded Austenitic Stainless Steel Pipe.”

**1.02    REFERENCES**

- A.    Related Articles:
  - 1.    Section 40—Lining and Coating, and Painting
- B.    American Society of Testing and Materials (ASTM)
  - 1.    ASTM A193—Stainless Steel Bolts, Hex Cap Screws, and Studs
  - 2.    ASTM A194—Stainless Steel Nuts
  - 3.    ASTM A262, Practice A—Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels
  - 4.    ASTM A269—Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service
  - 5.    ASTM A276—Standard Specification for Stainless and Heat-Resisting Steel Bars and Shapes
  - 6.    ASTM A312—Standard Specification for Seamless and Welded Austenitic Stainless Steel Pipe
  - 7.    ASTM A530—Standard Specification for General Requirements for Specialized Carbon and Alloy Steel Pipe
  - 8.    ASTM A774—Standard Specification for As-Welded Wrought Austenitic Stainless Steel Fittings for General Corrosive Service at Low and Moderate Temperatures
  - 9.    ASTM A778—Standard Specification for Welded, Unannealed Austenitic Stainless Steel Tubular Products

- C. American National Standards Institute (ANSI):
  - 1. ANSI B16.5—Stainless Steel Pipe Flanges and Flanged Fittings
  - 2. ANSI B16.9—Factory-Made Wrought Steel Buttwelding Fittings
  - 3. ANSI B36.19—Stainless Steel Pipe
- D. American Water Works Association (AWWA)
  - 1. AWWA C606—Grooved and Shouldered Joints
  - 2. AWWA C220—Standard for Stainless Steel Pipe
  - 3. AWWA C226—Stainless Steel Fittings
  - 4. AWWA C231—Field Welding of Stainless

### 1.03 SUBMITTALS

- A. The Contractor shall furnish detailed dimensioned shop drawings and calculations covering the details of all pipe, fittings, special sections, including reinforcement joint details, and miscellaneous items to be furnished and fabricated for the air wash pipes. Dimensions, tolerances, wall thickness, coating, lining, and other pertinent information shall be shown. Shop drawings shall include pipe manufacturer's allowable joint deflection limits of gasketed joint pipe for unstressed joints and for joints stressed to the manufacturer's maximum permissible amount without leakage. Material properties of the lining, cylinder, and coating materials to be used shall be included in sufficient detail to determine compliance with the Contract Documents. These shall be submitted to the Engineer for review prior to fabrication in accordance with Article 7.05.
- B. The proposed test methods and procedures shall, as a minimum, address the following items of work and areas of concern.
  - 1. *Welding*—Manual and Automatic Machines with Operator(s): Qualifications, Testing, Production Testing, Frequency of Test and Requalification, Reporting
  - 2. *Inspection Report of Joints*—Shall include final weld sizes
  - 3. *Sustained Pressure Testing*, Reporting
  - 4. *Retesting, Welds, and Epoxy Coating*—Causative Evaluation, Procedures, Limit(s) to Repair, Pipe Location Identification, Reporting
  - 5. *Fusion Bonded Epoxy*—Epoxy Mix (by batches), Application (test cylinders), Reporting
  - 6. *Tolerances*—Pipe, Epoxy Lining
  - 7. *Physical and Chemical Properties*

8. *Burst Strength Testing*

- C. To facilitate the review of the testing information being submitted on the pressure pipe, it shall be prepared and presented in an orderly format to the Engineer for favorable approval. The format shall be such that it provides for the following:
1. Defines the quality control/assurance procedures and reporting system on the manufacture of the pressure pipe and all its component parts.
  2. Includes a summary of all test results.
  3. Includes a representative sample of detailed test results.
  4. Includes an explanation of the method of selection of the representative sample of detailed test results.
  5. The maintenance by the Contractor of all records is necessary to assure that, for each separate fabricated section of pipe, complete traceability is established for all materials, testing, fabrication procedures, history of repairs, and machine/operator identification. The Engineer reserves the right to review and/or obtain copies of any or all of these records.
  6. Documentation including the description of the proposed means of accurately measuring the amount of water used during the hydrostatic testing.
- D. Final Piping layout with record drawing information (CAD electronic format) certified by a Professional Civil or Mechanical Engineer licensed in the State of California.
- E. Scaled AutoCAD drawings and AutoCAD electronic files for all new piping shall include:
1. Coordinate file (i.e., Excel file) to include Point ID, Northing, Easting, Elevation, Description
  2. Metadata file (i.e., text report which details the work done) to include, but not limited to Vertical/Horizontal Datum, units of measure, instruments used, name of crew members, data collection procedure, office processing procedure, field and office software used, etc.
- F. Filter media protection plan (see 32.02 part 3.04).

## 1.04 PIPING LAYOUT SHOP DRAWINGS AND COORDINATION

- A. Piping sizes, locations, and materials are indicated on Drawings. Not every offset, fitting, pip support, obstacle, and interface is shown. The Contractor shall complete the following work to coordinate and plan the coherent construction of piping systems in the systems with actual facilities and routes, pipe supports maintenance access, and constructability.



1. Show all components of the layout including (where applicable):
  - a. Dimensioned routing of piping with elevations
  - b. Dimensioned horizontal and vertical clearance between piping and/or adjacent piping, trench wall, trench grate, etc.
  - c. Elbows, couplings unions, reducers, drain points, restraint devices, thermal expansion joints and other fittings
  - d. Pipe supports
  - e. Elevations and slope of piping
  - f. Wall penetrations
  - g. Nearby obstacles (e.g., other piping, conduits, structural components)
  - h. References to typical civil, mechanical, electrical and instrumentation details
  - i. North arrows
  - j. Structural identification

#### 1.05 MEASUREMENT AND PAYMENT

- A. Unless noted otherwise, full compensation for Work involved in complying with all requirements per this Article as shown on the Drawings, as specified in these Specifications, and as directed by the Engineer shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time shall be allowed or payment made.

## PART 2 PRODUCTS

### 2.01 MATERIALS

#### A. SHOP COATINGS AND LININGS

1. Shop coatings and linings for fabricated pipe shall be in accordance with all applicable AWWA and NSF standards.
2. Unless otherwise noted, shop coatings and linings for fabricated stainless steel pipe shall have epoxy coatings and linings.
3. All steel pipe shall be fusion epoxy-coated, or liquid epoxy-coated in accordance with these Specifications and painted to provide uniform color after assembly.
4. Fusion Bonded Epoxy Coatings and Linings shall conform to AWWA Standard C213.

## B. PIPE AND FITTINGS

1. All Type 316L stainless steel pipe, fittings, and flanges shall be fabricated from stainless steel sheet and conform to ASTM A240 Type 316L, ASTM A778, and ANSI B36.19. Carbon content of Type 316L material shall be 0.03 percent maximum.
2. Flanges, where required, shall be steel flat-face ring flanges, drilling per ANSI B16.5, Class 150, conforming to ASTM A182. Finish shall be No. 1 or No. 2B. The Contractor shall verify that all flange drilling matches interfacing fittings and appurtenances.
3. Blind flanges shall be in accordance to the Drawings conforming to ASTM A182.
4. Flexible couplings shall be Type 316L Stainless Steel shall be Style 77s flexible coupling as manufactured by Victaulic, or equal.
5. Flanged expansion joint shall be style EZ-FLO 206 as manufactured by Garlock, or equal. Expansion joint material shall be as follows:
  - a. Tube Material—Chlorobutyl
  - b. Body Material—Nylon Tire Cord with Chlorobutyl
  - c. Cover Material—Chlorobutyl
  - d. Retaining Ring—Stainless Steel
6. Restrained Dismantling Joints shall be Type 316 Stainless Steel DJ400 Dismantling Joint as manufactured by ROMAC Industries, Inc., or Model 975 Dismantling Joint as manufactured by Smith-Blair, Inc. or equal.
7. Unless otherwise specified All nuts, bolts, and washers for joining flanged pipe, fittings, and appurtenances shall be Type 316L stainless steel and conform to ASTM A193 Grade B8M for bolts, and ASTM A194 Grade B8M for nuts. Flanged joints shall be torqued in accordance with AWWA M11 recommendations.
8. Unless otherwise specified, flange gaskets shall be 1/8 inch-thick, full face, cloth inserted rubber, corrosive acid and alkali free conforming to ANSI B16.21.
9. Bird spikes shall be installed on top of all above ground/exposed pipe located in the west and east filters. Bird Barrier™, or equal per manufacturer's recommendation.

## 2.02 FABRICATION

- A. Pipe shall be die-formed or rolled true to dimension and round. Tolerances for length, inside and outside diameter and straightness shall conform to ASTM A530. The two edges of sheet shall be brought to line so as not to leave a shoulder on the inside of the Ends of pipe and fittings shall be perpendicular to the longitudinal axis. Longitudinal seams on pipe and fittings shall be welded by either the tungsten gas or the metallic-gas method. The interior welds shall be smooth, even and shall not have an internal bead higher than 1/16-in. All pieces shall be marked with gauge and type of stainless steel and with the initials of the inspector marked on the inside of each piece, at each end.
- B. Fittings shall be butt weld type for sizes 12-inch and larger, manufactured in accordance with ASTM A774, A778, and ANSI B16.9 of the same raw material and in the same thicknesses as the pipe. Long radius elbows up to and including 18-inch diameter shall be smooth flow; i.e., centerline to end of elbow radius shall equal 1.5 times the nominal pipe size. Reducers shall be straight tapered, cone type. Tees, crosses, laterals and wyes shall be shop fabricated from pipe, and in addition, stainless steel reinforcement pads shall be fully welded to the branch and run of the pipe to maintain the specified pressure rating of the system.
- C. Stainless steel pipe and fittings shall be supplied with the following wall thicknesses:

<b>Diameter (Inches)</b>	<b>Wall Thickness Schedule Per ANSI B36.19</b>
12 (Aboveground)	10S
12 (Buried)	40S

- D. All stainless-steel pipe and fittings shall be pickled at the point of manufacture, scrubbed and washed until all discoloration is removed. Pickling of piping with hydrochloric acid or other acid harmful to the base metal shall not be allowed. Pipe and fittings shall be sandblasted or cleaned with solvent or other means acceptable to the Engineer.
- E. Pipe ends shall be prepared for couplings or other type ends where required by transport and handling limitations, where required by the support layout requirements and where noted on the Drawings. Grooving (or built-up ends for Schedule 10s pipe) shall be of the coupling manufacturers standard type and grooving tools shall be of the same manufacturer as the grooved components. Contractor is responsible for ensuring rigidity of joints where required.
- F. Shop welding of fabrications shall be done according to the procedures and by welders certified per ASME Section IX. Welds shall be by an inert gas shielding process using only extra low carbon filler metals. Welds shall have a bead height of no more than 1/16- in. Butt welds shall have 100 percent penetration to the interior or backside of the weld joint. Cross-sectional thickness of welds shall be equal or greater than that of the parent metal.

**2.03 APPURTENANCES AND ADDITIONAL PIPE JOINTS**

- A. Restrained joints shall be installed where indicated on the Drawings, or as directed by the Engineer. Restrained joints in manufactured pipe (with external lugs) shall be made by field welding of the joint unless harnessed mechanisms are used, such as across couplings.

**PART 3 EXECUTION****3.01 INSTALLATION**

- A. All pipe and fittings shall be installed true to grade and alignment and pipe anchorage and/or restraint shall be provided where required. Manufacturer's instructions shall be strictly followed. All pipe shall be welded except where flanges, couplings, or flanged coupling adapters are shown on the Drawings.
- B. Special care shall be taken in placing the pipe and making the field joints. Bumping of the pipe in the trench will not be permitted. Fabric slings shall be used for handling coated pipe, and sandbags or cradles shall be used to support the pipe when stockpiled.
- C. Unless otherwise shown, all joints in welded stainless steel pipe shall be circumferentially welded in the field using butt straps. Minimum fillet weld leg shall equal the thickness of the adjacent steel cylinder. Field welding of joints shall conform to the requirements of AWWA C231 and American Welding Society.
- D. To assemble the joints in the field, the Contractor shall thoroughly clean all joint surfaces and gaskets, if any, with soapy water before assembly. Bolts shall be tightened alternately, evenly to the manufacturer's specified torques. Under no condition shall extension wrenches or pipe-over-handle ratchet wrenches be used to secure greater leverage.
- E. All devices shall be installed in accordance with manufacturer's instructions and bolts tightened to the manufacturer's recommended torque. Precautionary measures shall be taken to prevent damage to the device, the gaskets, and the exterior of the pipe during installation. The installed coupling shall provide a joint with no visible leaks.
- F. Welding in the field of exposed pipe shall be kept to a minimum. Field welds shall be made by welders certified under ASME Section IX and be equal in all respects to shop welds. After field welding has been done, all joints shall be thoroughly cleaned and buffed using stainless steel deburring and finishing wheels.
- G. After installation, stainless steel pipelines shall be washed clean with steam or hot water to remove any foreign material picked up during transport, storage, and installation.

## 3.02 PIPE AIR TESTING

- A. Test all piping by the air test method for leakage and integrity as specified in the Piping Schedule below:

Fluid Abbreviation	Description	Material	Nominal Diameter (Inches)	Wall Thickness Schedule	Working Pressure (PSIG)	Test Pressure (PSIG), Test Medium	Allowable Leakage
AW	Filter Air Wash	Type 316L stainless steel (SSP)	12	SCH. 10	8	25, Air	No leakage

- B. Furnish all labor, testing plugs, caps, blanks, and fittings, dry, clean air supply, blocking, gauges, and all other equipment required. No testing against valves is permitted. All testing shall be completed in the presence of the Engineer and test reports shall be prepared for each test.
- C. Examine and test piping being air tested for leaks with soap solution.
- D. Replace all faulty joints, fittings, gaskets, and pipe as required to obtain a successful pressure test. Retest after repairs are made.

## 3.03 WALL AND SLAB PENETRATIONS

- A. Provide sleeves for piping penetrations through aboveground masonry, concrete walls, floors, and beams unless otherwise noted on the Drawings.
- B. Arrange sleeves and adjacent joints so piping can be pulled out of sleeve and replaced without disturbing the structure.
- C. Cut ends of sleeves flush with surfaces of concrete, masonry, or plaster.
- D. Conceal ends of sleeves with backer rods with grout where piping run through floors, walls, or ceilings of finished spaces within buildings.
- E. Seal spaces between pipes and sleeves.
- F. Provide link seal where seal is used to seal all welt wall sleeves. Coordinate the inside diameter of the wall sleeve with the size of the seal to provide watertight sealing.

## 3.04 PROTECTION OF WEST AND EAST FILTERS

- A. Contractor is required to enter the East and West Filters for the removal of the existing air wash piping and installation of the new air wash piping and appurtenances.
- B. Contractor shall at all times protect granular active carbon filter media from direct contact with the Contractor and the Contractor's materials equipment, dust and debris.

- C. Contractor shall provide temporary facilities to support the loads imposed by the Contractor and the Contractor's materials and equipment to prevent crushing, grinding, or pulverizing the granular activated carbon filter media. Contractor shall prevent sinking into the media bed through the use of these temporary facilities.
- D. Contractor shall submit a detailed filter media protection plan to include, but not be limited to materials used to protect the filter media and installation plan.

### 3.05 QUALITY ASSURANCE

- A. The manufacturer is responsible for the performance of all fabricated components, as specified herein. In addition, all pipe and fittings to be installed under this Contract may be inspected for compliance with these Contract Documents by the Engineer and an approved independent testing laboratory.
- B. Inspection of the pipe and fittings may also be made by the Engineer or other representatives of the District after delivery. The pipe shall be subject to rejection at any time due to failure to meet Contract Documents requirements, even though sample pipes may have been accepted as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall be immediately removed from the job site.
- C. All of the stainless-steel pipe and fittings shall be furnished by a manufacturer who is fully experienced (for at least five (5) years), reputable, qualified, and regularly engaged in the fabrication of the materials to be furnished.

END OF ARTICLE

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**PART 1      GENERAL**

**1.01    SUMMARY**

- A.    The work specified in this Article includes furnishing and installing the permanent support and anchorage of above ground and in structure piping and associated appurtenances as shown on the Drawings or as specified herein.
- B.    Unless otherwise noted, the word “piping” as used herein shall mean pipe, pipe sections, tubing, fittings, and appurtenances.
- C.    The word “support” as used herein shall mean all manner and type of piping supports as used in the mechanical trades including overhead and wall hangers, brackets, clamps, rods, concrete inserts, struts, miscellaneous metals and non-metallic fabrications, anchorages, and appurtenances for the permanent installation of piping.
- D.    All piping supports and anchorages are typically not shown on the Drawings.

**1.02    RELATED REQUIREMENTS**

- A.    Article 32.02—Stainless Steel Piping and Fittings
- B.    Article 40.01—Lining and Coating
- C.    American Society of Testing and Materials (ASTM):
  - 1.    A 123—Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
  - 2.    A 153—Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
  - 3.    A 385—Standard Practice for Providing High-Quality Zinc Coatings (Hot-Dip)
- D.    International Code Council (ICC):
  - 1.    California Building Code, Most Recent Edition
  - 2.    California Mechanical Code, Most Recent Edition
  - 3.    California Plumbing Code, Most Recent Edition
  - 4.    As a minimum, piping supports shall comply with the requirements of the above codes and with stricter criteria herein.



- E. SMACNA Seismic Restraint Manual Guidelines for Mechanical Systems, Most Recent Edition
  - 1. As a minimum, piping shall be provided with braces that satisfy the Seismic Restraint Manual Guidelines for Mechanical Systems, Seismic Hazard Level A, Connection Level 1.

#### 1.03 SUBMITTALS

- A. Shop Drawings: Include layout of support system including pipe loads, part number, fittings, and appurtenances.
- B. Complete data, catalog information, and drawings covering fabrication pipe supports, fabricated inserts, and stainless steel and galvanized pipe supports shall be submitted.
- C. Design calculations of piping supports and anchorage. Calculations shall be stamped and signed by a Professional Engineer registered in California.

#### 1.04 MEASUREMENT AND PAYMENT

- A. Unless noted otherwise, full compensation for Work involved in complying with all requirements per this Article as shown on the Drawings, as specified in these Specifications, and as directed by the Engineer shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time shall be allowed or payment made.

### PART 2 PRODUCTS

#### 2.01 PIPE SUPPORTS

- A. All materials furnished by the Contractor shall be of standard quality and proven ability as required for the given application and as specified in herein.
- B. Pipe supports and hardware shall be, stainless steel, as required for the given application and as indicated on the Drawings.
- C. Pipe supports and hardware shall be the appropriate applicable models as manufactured by: Anvil International, Elcen Metal Products Co., Carpenter and Paterson Inc., Unistrut, Powerstrut or equal.

#### 2.02 OVERHEAD HANGERS

- A. Single pipes shall be supported by hangers suspended by threaded hot rolled steel rods from structural steel members, concrete ceilings and beams, unless specified or shown otherwise.
- B. Stainless Steel Overhead hangers for uninsulated piping shall be of the following type unless noted otherwise on the Drawings. Hangers supporting insulated piping shall be recommended by the manufacturer for that purpose.

Nominal Piping Diameter	Hanger Type	Anvil International Fig. Number
12 in.	Adjustable Clevis	260SS

- C. Overhead hangers shall be capable of at least 1-1/2 in. vertical adjustment with the pipe installed.

### 2.03 HANGER RODS AND STRUCTURAL ATTACHMENTS

- A. Hanger rods shall be machine threaded with the strength based on the root diameter. Hanger rods shall be Type 316 stainless steel. Hanger rod diameter shall be as specified or shown on the Contract Drawings.
1. Hanger rods shall be supported from concrete as required.
  2. Anchor bolts, nuts, and washers shall be 316 stainless steel equal to Hilti Kwik Bolt 3.
  3. Epoxy adhesives for epoxy anchors shall meet ASTM C881, Type IV, Grade 3, be two-component, approved for installation in wet locations. Epoxy adhesives shall be Hilti HIT RE 500 V3, as manufactured by Hilti Inc., or equal.
  4. Turnbuckles shall be equal to Anvil International Figure 230.

## PART 3 EXECUTION

### 3.01 SUPPORT AND ANCHORAGE DESIGN CRITERIA

- A. As a minimum, piping supports shall comply with the requirements of the California Building Code, California Plumbing Code, and California Mechanical Code. Comply with stricter criteria herein. As a minimum, steel piping shall be provided with braces that satisfy the SMACNA Seismic Restraint Manual Guidelines for Mechanical Systems (latest edition), Seismic Hazard Level A, Connection Level 1.
- B. All piping shall be properly and adequately supported and anchored so as to maintain the supported loads in proper position under all operation conditions without unnecessary movement or strain on any piece of equipment.
- C. The working factor of safety for supports shall be a minimum of five (5) times the ultimate pipe load, assuming pipe is being supported at the maximum spacing as specified.
- D. The minimum factor of safety for thrust anchorage design shall be 1.5 the times working pressure; or test pressure; whichever is highest or as noted on the Drawings, and as acceptable to the Engineer.

### 3.02 QUALIFICATIONS/RESPONSIBILITY

- A. The supports specified under this section shall be furnished by a manufacturer who is fully experienced, reputable, qualified, and has been regularly engaged in

the manufacture (or fabrication) of the items to be furnished for at least five (5) years.

### 3.03 INSTALLATION

- A. All required piping, fittings, valves, and appurtenances shall be rigidly supported from the structures by acceptable support hangers, with adequate provisions for expansion and contraction. A minimum of 1-inch clearance (greater as required) shall be provided between all valves, unions, and fittings and walls, piping, equipment, and other obstructions to allow removal and repair. Support shall be provided at, or near, changes in direction, hubs, joints, valves, appurtenances, branches and elsewhere within 3 feet of couplings in accordance with the manufacturer's recommendations, as shown on the Drawings, and as specified herein.
- B. Additional supports and anchors where required by criteria other than the type of pipe or by joints shown on the Drawings shall be the Contractor's responsibility and as acceptable to the Engineer.
- C. Supports shall provide firm support but not so firm as to prevent longitudinal pipe movement due to thermal contraction and expansion. In addition, point loading shall be avoided for soft or non-metallic piping.
- D. Piping shall not be supported from other piping or from metal stairs, ladders, or walkways, unless specifically allowed by the Engineer. Piping 3 inches and larger shall be a minimum distance of 1-1/2 inches (flanges or bells – 1 inch) from finished floors, walls, or ceilings unless otherwise shown on the Drawings, or specified. Where piping is installed on structural steel supports, blocking of pipe rolls shall be provided to arrest lateral pipe movement.
- E. All pipes shall be anchored at locations and by methods as acceptable to the Engineer.
- F. All pipe supports shall be free of sharp edges, burrs, and rough edges, especially at cut surfaces.

### 3.04 COATING

- A. After fabrication and before installation all metal surfaces of pipe supports, hangers, anchors, rods, support pipes, brackets, nuts, bolts, washers, and other metal used, shall be galvanized conforming to ASTM A123, A153, and A385, as applicable (except cast or ductile iron and stainless steel).

### 3.05 FIELD INSPECTION, TESTING, AND CORRECTION OF DEFICIENCIES

- A. Hangers, supports, and anchors installed on the piping system shall operate satisfactorily as specified in Paragraph 1.02 during the testing of the respective systems. The hangers, supports, and anchors shall maintain piping in position without evidence of bending, sagging, warping, vibration, or stress.
- B. Post-installed mechanical anchors shall be checked for tightness a minimum of 24 hours after initial installation. Install anchors using the manufacturer's

recommended drive units and adapters, in compliance with the manufacturer's recommendations.

- C. Post-installed adhesive anchors shall not be loaded until the adhesive has reached its indicated strength in accordance with the manufacturer's instructions.
- D. Adhesive anchors installed in a horizontal or upwardly inclined position shall have the following additional requirements:
  - 1. Installation shall be performed by personnel certified in accordance with the ACI/CRSI Adhesive Anchor Certification program.
  - 2. Installation shall be inspected by a certified special inspector who is continuously present when the installation is performed.
- E. Holes for adhesive and expansion anchors shall be roughened with a brush on a power drill, cleaned, and dry.
- F. All materials and work shall be accessible and subject to inspection by the Engineer.

END OF ARTICLE

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**PART 1 GENERAL**

**1.01 SUMMARY**

- A. The work specified in this Article includes furnishing all labor, materials and equipment required to perform internal video inspection of the existing underground air wash pipeline system following the completion of the internal pipeline cleaning and after air wash pipeline relining.
- B. The Contractor is responsible for reviewing applicable as-built drawings and these Specifications to determine the distances and slopes between the potential access points to determine appurtenances needed for the inspection.
- C. The Contractor's equipment shall be capable of:
  - 1. Navigating the lengths, grades, and transition of the pipeline,
  - 2. Producing and recording continuous high-resolution color video for clear full coverage viewing of all internal pipeline surfaces, and
  - 3. Producing high-resolution digital color still images of all areas of concern with time, date and distance imprints for documentation and reporting purposes.
- D. The contractor shall clean and disinfect all equipment and associated components prior to use on this application. Equipment disinfection shall be performed in accordance with applicable elements of the AWWA C652 standard.

**1.02 REFERENCES**

- A. Related Sections:
  - 1. Article 32.21—Internal Pipeline Cleaning
- B. American Water Works Association (AWWA):
  - 1. AWWA 6551—Disinfecting Water Mains

**1.03 SUBMITTALS**

- A. The Contractor shall submit copies of a site-specific inspection plan 3 weeks prior to beginning the internal pipeline video inspection. The inspection plan shall include the following:
  - 1. Description of the video inspection methodology.
  - 2. Description and specifications of the video inspection equipment to be used including, but not limited to, resolution, degree of coverage and focus, method of in pipe movement, recording media, and onsite display.

If requested, the Contractor shall make the video inspection equipment available for viewing, by the Engineer.

3. Minimum of three (3) references of comparable water pipeline inspections within the last three (3) years. Reference information shall include:
    - a. Organization
    - b. Project site location
    - c. Contact person with contact information
    - d. Brief description of services provided
  4. Samples of the video, photographs, and written documentation from a comparable pipeline inspection project.
  5. Qualifications
    - a. The Contractor or subcontractor shall be fully experienced and properly qualified, licensed, equipped and organized to perform the work specified.
    - b. The Contractor or subcontractor shall have at least three (3) years' experience in the video inspection of water pipelines.
    - c. The technicians performing the inspection shall have a minimum of three (3) years' experience in the video inspection of pipelines.
- B. After the internal pipeline video inspections, the Contractor shall submit copies of the following a comprehensive Inspection Report shall be submitted no later than one (1) week after the completion of the internal pipeline video inspection. This inspection report shall be prepared, in accordance, with standard industry practice, and at a minimum, include:
1. Video files:
    - a. Three high-resolution color video copies of all inspections on USB flash drive, with audio and the requisite real-time on-screen inspection data displays. The raw and edited video files shall be provided on separate USB flash drives.
    - b. The flash drives shall include, at a minimum, the project name, dates of the pipeline inspection, contractor's name, and the pipe segments inspected as identified by site location.
  2. Inspection logs:
    - a. Inspection logs providing the requisite anomaly descriptions, information as to where each anomaly can be found in the video and a reference to accompany still photo images of each anomaly.

3. Photos:
    - a. A sufficient number of color photo images of each anomaly from varying perspectives must be included in the report to accurately and completely document the inspection findings.
    - b. Still images shall be high-resolution (25 megapixel min.), color and time stamped to indicate where in the image can be found in the inspection video.
  4. Schematic drawing:
    - a. Plan view schematic drawing(s) of the pipeline shall be included in the report, defining and identifying the segments of the pipeline that have been inspected and showing where the problem areas were identified and documented.
  5. Inspection report:
    - a. The inspection report shall be prepared in MS Word format and bound. Three full color copies of the report shall be submitted.
    - b. All inspection log sheets, computer-generated reports, and other written documentation of the pipeline inspection shall be provided to the District.
- C. Prior to beginning the pipeline internal video inspection work, the Contractor shall provide documentation substantiating that all equipment and associated components entering the pipeline have been disinfected in accordance with applicable AWWA standards and as specified herein.

#### 1.04 MEASUREMENT AND PAYMENT

- A. Refer to Article 21.01, Bid Items.

### **PART 2 PRODUCTS**

#### 2.01 MINIMUM EQUIPMENT REQUIREMENTS

- A. The video camera shall have, at the minimum, the following capabilities: 360-degree pan, 270-degree tilting, high resolution (25 megapixel min.), color, variable zoom and focus, light-emitting diodes (LED) or high intensity lighting and digital still photo color imaging. All referenced features shall be controllable from the viewing station.
- B. The video camera shall be tractor or wheel driven with the camera head suitably positioned and sized for each pipe diameter to be inspected. The tractor shall be able to pass over uneven and rough surfaces inside the pipeline. The camera shall be capable of inspecting pipe a minimum of 2500 feet from the available access site under varying conditions.
- C. The video inspection equipment shall be capable of a properly oriented on-site televised display and shall provide a full, clear, stable, and in-focus view of



specific pipeline features at varying distances and of the full pipe diameter views at a minimum of eight (8) feet from the face of the video camera.

- D. The on-site televised and recorded video display shall have continuous on-screen indications for pertinent inspection data including, but not limited to, distance traveled, time, date, etc. The distance measurement shall be to the nearest foot and shall be zero from the centerline at each starting manhole (nozzle) access site to establish a uniform starting point for each section televised.
- E. For each pipeline section, the video record shall include the following information at the beginning of the recording: project name, pipeline name, location and site number, direction of travel, date, Contractor's Name.

### **PART 3 EXECUTION**

#### **3.01 SCHEDULE**

- A. The schedule for the two internal video inspections, one following the completion of the internal pipeline cleaning and one after air wash pipeline relining, shall be incorporated into the Contractor's Detail Schedule of Work, as required and specified in Article 5.05.
- B. The Contractor shall provide ten (10) days advanced notice to the District prior to internal video inspection.

#### **3.02 PREPARATION**

- A. The Contractor shall review all applicable pipeline drawings and documents prior to beginning the internal video inspection work.
- B. Pipeline Conditions:
  - 1. The internal pipeline may be humid, foggy, wet and slippery.
  - 2. The Contractor shall be prepared and have the resources (i.e., equipment, labor, materials, etc.) available to remotely video inspect the entire pipeline regardless of site and pipeline conditions.
  - 3. The Contractor shall be prepared to install a tag line or pull rope between adjacent access points, prior to the remote video inspection, to assist the remote video equipment should it lose traction. The tag line or pull rope installation methodology must be reviewed and approved by the District prior to implementation and shall be described in the video inspection methodology submittal.

#### **3.03 PERFORMANCE REQUIREMENTS**

- A. The Contractor shall conduct the internal video inspections through existing pipeline access sites.
- B. The Contractor shall conduct the video inspection, analyze the inspection results, provide the District with a digital copy of the inspection and allow the District seven (7) calendar days to review the video inspection before permanently

securing the pipeline access site(s). If the Contractor, preemptively, closes the access point, then the Contractor shall, at his own expense, re-open and re-close the access site.

- C. The Contractor shall inspect the pipeline up and down stream of each access site to the extent possible given the pipeline configuration, sloped, internal obstructions, and the range of the video inspection equipment.
- D. The center of the video camera lens and lighting shall be positioned approximately in the middle of the pipeline. The camera lenses and lighting shall be kept clean and unobstructed at all times.
- E. The speed of the video camera through the pipeline shall be variable and controllable as required, but not more than 30 feet per minute. The video camera movement shall be stable and smooth to ensure steady progress while capturing a clear and in-focus video image.
- F. All appurtenances (laterals, manholes, etc.) and abnormal, distressed, deteriorated and/or defective areas in the pipeline shall be identified in the recorded video and in written and photographic documentation. Areas of concern may include, but are not limited to:
  - 1. The presence of an external objects.
  - 2. Longitudinal and/or circumferential cracking or pipe damage.
  - 3. Water infiltration.
  - 4. Large joint offsets or separations (over ½ inch).
  - 5. Any other structural & service abnormalities.
  - 6. Loss of concrete lining.
  - 7. Excess debris.
- G. Identification and documentation of all internal pipeline appurtenances and anomalies shall include the location relative to the access point, lateral position in the pipe, and the description, dimension and extent of the affected area. Pipeline appurtenances and anomalies shown in the video recording and still capture photos shall be clear and in enough detail for identification and condition assessment.
- H. A District representative shall be present during all internal pipeline video inspections. During the inspection, the District representative may request that the video camera be intermittently stopped and adjusted to view and analyze conditions that appear unusual or uncommon.
- I. The Contractor shall notify the Engineer immediately if the pipeline inspection cannot be completed due to excessively adverse internal pipeline conditions such as, but not limited to, collapse, void, displaced joints, excessive debris, solid obstructions, or other abnormalities. All pipeline sections that cannot be completed shall be noted and described.

- J. The Contractor shall notify the Engineer immediately if the video camera becomes stuck in the pipeline. The Contractor shall remove the stuck video camera using whatever means agreed upon with the Engineer.
- K. The Contractor shall use a computer system and video capture card to capture the original recording continuously regardless of the progress of the inspection. The Contractor shall edit the original raw digital file, using non-linear video editing software, to remove pauses where pipeline inspection progress is not continuous. The edited digital file shall not be recompressed.

END OF ARTICLE

**PART 1      GENERAL**

**1.01    SUMMARY**

- A.    This section includes materials and procedures for local cleaning and disinfecting new and existing pipeline, piping and associated appurtenances installed, modified and/or contaminated in the course of the Contractor's work.

**1.02    REFERENCES**

- A.    Related Articles
  - 1.    Article 32.02—Stainless Steel Piping and Fittings
  - 2.    Article 32.21—Internal Pipeline Cleaning
- B.    American Water Works association (AWWA)
  - 1.    AWWA C651-14—Standard for Disinfecting Water Mains
  - 2.    AWWA B300—Standard for Hypochlorite
- C.    National Sanitation Foundation (NSF)
  - 1.    NSF Standard 60 Drinking Water Treatment Chemical Program

**1.03    SUBMITTALS**

- A.    Refer to Article 7.05—Submittals to be Furnished by the Contractor for submittal requirements.
- B.    Refer to Article 32.01—General Piping Requirements for other piping submittal requirements.
- C.    Prior to disinfectant work, Contractor shall submit a disinfectant plan.

**1.04    MEASUREMENT AND PAYMENT**

- A.    Unless noted otherwise, full compensation for Work involved in complying with all requirements per this Article as shown on the Drawings, as specified in these Specifications, and as directed by the Engineer shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time shall be allowed or payment made.

**PART 2 PRODUCTS****2.01 MATERIALS**

- A. 1 to 5 percent Sodium Hypochlorite solution, conforming to the requirements of AWWA B300 and NSF 60, for swabbing surfaces.

**PART 3 EXECUTION****3.01 GENERAL**

- A. The Contractor shall follow procedures as described in AWWA C651.
- B. The Contractor shall make every effort to prevent the entry of contaminating materials into the pipeline, piping and associated appurtenances during the execution of this work.
- C. The Contractor shall clean and disinfect the interior surfaces of all new piping, valves, fittings and associated appurtenances prior to installation.
- D. The contractor shall ensure that at no time during the work described in this section shall water be released or make contact with the filter media in the gallery.
- E. The Contractor shall thoroughly clean and disinfect all affected interior pipeline surfaces:
  - 1. Pipeline Cleaning:
    - a. The Contractor shall remove all loose dirt, debris and foreign materials accumulated in the pipeline during construction. Dirt, debris and foreign materials shall be removed from the pipeline by vacuuming or other suitable means.
    - b. The Contractor shall thoroughly clean all affected interior pipeline surfaces with potable water and clean swabs.
  - 2. Pipeline Disinfection:
    - a. The Contractor shall swab the, previously cleaned, affected interior pipeline surfaces with a 1 to 5 percent Hypochlorite Solution.
    - b. The Contractor shall follow procedures set forth in AWWA C651-14 for disinfecting water mains.
  - 3. The Contractor shall handle and dispose of all disinfecting materials and water in accordance with applicable regulatory requirements and as specified herein.

**3.02 INSPECTION AND TESTING**

- A. Contractor shall notify Engineer a minimum of two (2) working days in advance of all localized pipeline cleaning and disinfection activities. The Contractor shall allow the District to observe and inspect the affected interior of the pipeline surfaces prior to and following the cleaning and disinfection process.
- B. Prior to closure, the Contractor shall allow up to 48 hours for Valley Water to perform bacteriological testing according to Valley Water standard practice WQ-Q\_002; if bacteriological testing is not satisfactory, the Contractor shall repeat disinfection, until two consecutive negative bacteriological results are obtained.

END OF ARTICLE

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**PART 1      GENERAL**

**1.01    SUMMARY**

- A.    The work specified in this Article includes the performance of all work necessary to clean existing segments of non-operational air wash pipeline and connect to new air wash pipeline segments as shown on the Drawings and as specified herein.
- B.    The Contractor is to provide internal video inspection following the completion of the work specified herein.
- C.    Plan and Profile sheets for the Santa Teresa Water Treatment Plant Air Wash Line Replacement are provided as reference sheets in the Drawings.
- D.    Due to the use of pipeline, the contractor shall disinfect all cleaning equipment and associated components prior to use on this air wash pipeline. Equipment disinfection shall be performed in accordance with applicable elements of the AWWA C652 standard.
- E.    The intent of the pipeline cleaning is to:
  - 1.    Remove all sand, silt, solids, sludge and other such debris and/or foreign matter that could prove deleterious to the transmission of back was air required to clean the filter media.
  - 2.    Enable a thorough examination of the internal pipeline surfaces.
- F.    The Contractor shall perform the pipeline cleaning work as necessary to enable a thorough internal video inspection. The pipeline shall be clean enough to make readily discernible 95% of the internal pipeline surface, including, but not limited to, all appurtenance nozzles, joints and unknown pipeline defects.
- G.    The Contractor will be responsible for obtaining a transient water meter and paying for water used during course of cleaning.
- H.    The contractor shall ensure that at no time during the work described in this section shall water be released or make contact with the filter media in the gallery.
- I.    The Contractor shall pump-out and/or vacuum-out, capture, treat and dispose of all pipeline draining and cleaning water and associated debris in accordance with applicable regulatory requirements.
- J.    The Contractor will be responsible for recovering any equipment that becomes lodged or lost in the pipeline including, but not limited to, any cost associated with required evacuation, restoration of roads, repairs to pipes and appurtenances as



needed to restore the pipeline and appurtenances back to their original conditions.

- K. The Contractor shall drain and clean the buried air wash segment of pipeline prior to removing the bulkheads from each end of the existing pipeline segment.

## 1.02 REFERENCES

### A. Related Articles

- 1. Article 32.19—Pipe Disinfection
- 2. Article 32.09—Internal Pipeline Video Inspection

### B. American Water Works Association (AWWA):

- 1. ANSI/AWWA C652—Disinfection of Water Storage Facilities

## 1.03 SUBMITTALS

- A. Prior to beginning the pipeline cleaning work, the Contractor shall submit copies of a site-specific cleaning plan. The cleaning plan shall include the following:

- 1. Description of the cleaning methodology. Including, a filter media protection plan.
- 2. Description and specifications of the equipment to be used including, but not limited to, make and model number, as applicable.
- 3. Minimum of three (3) references of comparable pipeline projects within the last three (3) years. Reference information shall include:
  - a. Organization
  - b. Project site location
  - c. Contact person with contact information
  - d. Brief description of services provided

- B. Prior to beginning the pipeline draining and cleaning work, the Contractor shall provide documentation substantiating that all equipment and associated components entering the pipeline have been disinfected in accordance with applicable AWWA standards and as specified herein.

### C. Qualifications

- 1. The Contractor or subcontractor shall be fully experienced and properly qualified, licensed, equipped and organized to perform the work specified.
  - a. The Contractor or subcontractor shall have at least three (3) years experience in the cleaning of water pipelines.

- b. The technicians performing the cleaning shall have a minimum of three (3) years experience.

#### 1.04 MEASUREMENT AND PAYMENT

- A. Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work required for cleaning the air wash pipeline, as shown on the Drawings and as specified in these Specifications, shall be included in the lump sum price bid for Bid Item entitled "Support for Internal Pipeline Work."
- B. Refer to Article 21.01, Bid Items.

### PART 2 PRODUCTS

#### 2.01 CLEANING EQUIPMENT

- A. High-Velocity Jet (Hydro-Cleaning) Equipment:
  - 1. All high-velocity cleaning equipment shall be constructed for ease and safety of operation.
  - 2. All hydro-cleaning equipment shall be trunk mounted, and the truck shall carry its own water tank, fill system, auxiliary engines, pumps, water piping, hydraulically driven hose reel and pressure rated hose.
  - 3. The hose shall be capable of cleaning the diameter of pipeline specified and of sufficient length to perform the necessary cleaning operations.
  - 4. The hose reel shall be hydraulically driven in both directions and the drive shall have sufficient power to retract the hose and attachments when the cleaning nozzle is in operation.
  - 5. All high velocity jet cleaning equipment shall have a selection of high velocity nozzles and shall be capable of producing a range of scouring velocities ranging from fine mist to a solid stream.
  - 6. The range of water pressure shall be sufficient enough to completely clean the pipeline as specified.
  - 7. All functions of the high velocity jet hydraulic attachments must be remotely controlled.
  - 8. The nozzles shall be capable of producing a scouring action from fifteen (15) to forty-five (45) degrees from the horizontal.
- B. Vacuum machines and/or in-line pumps shall be used to remove the debris laden water from the pipeline.

**PART 3 EXECUTION****3.01 PREPARATION**

- A. All equipment, hoses and associated components that will enter the pipeline must be disinfected prior to implementation. The method of equipment disinfection can be submersion in, spraying with or sponging with disinfection solution. The disinfection solution shall contain at least 200-mg/L of available chlorine.

**3.02 CLEANING**

- A. Cleaning shall consist of normal hydraulic jet cleaning to facilitate the internal video inspection. Cleaning shall consist of two to four passes of the jet nozzle, as required, so that 95% of the internal surface of the pipeline is readily discernible to enable a thorough internal video inspection.
- B. All material (cleaning water, debris, etc.) resulting from the cleaning operation shall be removed from the pipeline.
- C. Existing filter media shall be protected at all times.

**3.03 SAFETY**

- A. All necessary precautions shall be taken to protect the pipeline from damage during all cleaning operations. Precautions shall also be taken to insure that no damage is caused to public or private property adjacent to work. The Contractor shall pay for and restore, at no additional costs to the District, any damage caused to public or private property because of such cleaning operations.

**3.04 DISPOSAL**

- A. Contractor shall be responsible for the handling, hauling and disposal of all debris, silt, and accumulated solids removed from the pipeline. All debris, silt and solids removed by Contractor shall be disposed of at a facility licensed for the handling and disposal of such materials in accordance with all appropriate codes, rules and regulations for the handling and disposal of such materials.

END OF ARTICLE

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. The work specified in this Article includes furnishing and installing of insulating joints, and other materials required for the protection of the pressure pipe and appurtenances, as shown on the Drawings and as specified herein.
- B. Work incidental to installation of these facilities includes installation field-apply epoxy at flanged insulating joints.
- C. Coating for all buried bolts, nuts and metallic washers shall have Bitumastic coal tar mastic coating.

**1.02 Related requirements**

- A. Article 32.02—Stainless Steel Piping and Fittings
- B. Article 40.01—Lining and Coating

**1.03 SUBMITTALS**

- A. Refer to Article 7.05—Submittals to be Furnished by the Contractor for submittal requirements.

**1.04 MEASUREMENT AND PAYMENT**

- A. Unless noted otherwise, full compensation for Work involved in complying with all requirements per this Article as shown on the Drawings, as specified in these Specifications, and as directed by the Engineer shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time shall be allowed or payment made.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Materials and equipment furnished under this Article shall be the standard product of manufacturers regularly engaged in the manufacture of such products and shall be the manufacturer's latest standard design that complies with the requirements of these Specifications.
- B. All materials and equipment shall be new and shall bear Underwriters Laboratories (UL) approval where UL standards apply. Unless otherwise specified, materials and equipment shall conform to the requirements of the National Electric Code (NEC) and shall be installed to conform to all city, county, state, federal, and special codes and regulations.

**C. Insulating Joints**

1. Flange insulation kits shall contain full face non-asbestos gaskets having a minimum dielectric strength of 500 volts/mil, full length insulating sleeves, insulating washers, and high strength steel bolts with steel washers as shown on the Drawings.
2. The complete assembly shall have a pressure rating equal to that of the flanges between which it is installed.
  - a. Gaskets shall be neoprene faced phenolic, 1/8-inch thick.
  - b. Insulating sleeves shall be NEMA G-10 epoxy glass insulating kits, min. 1/32-inch thick.
  - c. Steel washers shall be cadmium plated and fit well within the bolt facing on the flange.
  - d. Insulating washers shall be set of 1/8-inch thick fiberglass epoxy. Insulating washers shall fit within the bolt facing the flange over the outside diameter of the sleeve.

**D. Field Coating at Flanged Insulating Joints**

1. The Contractor shall install a field-applied, two-part, 100 percent solids epoxy coating at insulating joints as shown on the Drawings and as specified herein.
2. The 100 percent solids epoxy coating shall be NSF 61 listed, 0 percent volatile organic compound, white color, two coats.
3. The 100 percent solids epoxy coating shall be Aquatapoxy Coating System A-6, as manufactured by American Chemical Corporation, 5231 Northrup Avenue, St. Louis, Missouri 63110, or equal.

**E. Bitumastic Coating**

1. Bitumastic coating shall be TC Mastic, as manufactured by Tapecoat Company, Bitumastic 505, as manufactured by Kopcoat, Inc., or equal.

**PART 3 EXECUTION****3.01 GENERAL**

- A. Record Drawings for the cathodic protection system shall be maintained by the Contractor during installation and construction of the cathodic protection system. Record Drawings shall be revised by the Contractor to show exact locations of all anodes, rectifiers, cables, conduit, and wire to pipe connector locations and shall properly identify all items of equipment and material.

- B. Insulating Joints—Insulating joints shall be installed as specified herein. Locations for insulating joints shall include the following unless indicated otherwise on the Drawings:
1. Buried air wash locations at access points.
  2. All connections between different types of pipe (i.e., welded steel pipe or ductile iron pipe). This requirement shall be waived at tapers and specials if the pipe coating on both types of pipe is the same.
  3. Other locations as shown on the Drawings or specified herein.
- C. Field Epoxy Coating at Flanged Insulating Joints
1. Surface preparation shall consist of wire brushing to remove all rust and scale and to provide a suitable surface for adhesion of the 100 percent solids epoxy coating. See Article 40.01 – ‘Coating and Paints’ of the Technical Provisions.
- D. All buried nuts and bolts not in direct contact with mortar coating, mortar encasement, or CLSM shall be coated with bitumastic prior to encasement. After flange hardware is installed use wire brush, power brush, or an abrasive cleaning pad to remove all loose material, dirt and grime from substrate to a minimum cleanliness of SSPC SP2. Apply bitumastic coating liberally with a medium bristle brush to the extent that all surfaces are completely covered with no bare spots visually evident. Coat exposed surfaces of bolts, washers and nuts, giving special attention to the bottom-side surfaces. Follow the manufacturer’s recommendations for drying times required before encasement and backfill.

### 3.02 TESTING

- A. The Engineer reserves the right to test and inspect all phases of the Contractor’s work. The Contractor shall notify the Engineer at least two (2) days in advance for inspection of materials and critical operations as defined below:
1. Installation of buried insulating fittings.

END OF ARTICLE

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**PART 1      GENERAL**

**1.01    SUMMARY**

- A.    This article covers protective coating and lining systems for the new stainless steel pipe and pipeline appurtenances.
- B.    Unless otherwise specified herein or shown on the Drawings, all stainless steel pipe, including nozzles, bends, and fittings shall be shop fusion-bonded epoxy lined and coated conforming to AWWA Standard C213. Existing buried pipe shall be relined with liquid epoxy coating conforming to AWWA Standard C210.
- C.    All flanges, couplings, both flanged and not flanged, shall be fusion bonded epoxy coated and lined conforming to AWWA Standard C213 on all surfaces.
- D.    Unless otherwise indicated, insulating joints, bolt heads, and support hanger devices shall be liquid epoxy-coated in accordance with these Specifications and painted to provide uniform color after assembly.
- E.    The entire procedure(s) of applying the protective coating materials as herein specified may be inspected by the Engineer from surface preparation to completion of coating. Such inspection shall not relieve the Contractor of their responsibility to furnish material and perform work in accordance with these Specifications.
- F.    The Engineer shall have free access to those parts of all plants that are concerned with the furnishing of materials or the performance of work under this Contract.
- G.    The Contractor shall furnish the Engineer reasonable facilities and space, without charge, for the inspection, testing, and obtaining of such information as he/she desires regarding the character of material used and the progress and manner of the work and the results obtained.

**1.02    REFERENCES**

- A.    Related Articles:
  - 1.    Section 32.02—Stainless Steel Piping and Fittings
  - 2.    Article 40.02—Painting
  - 3.    Article 39.01—Corrosion Control – General



- B. American Water Works Association (AWWA):
  - 1. AWWA C 210—Liquid Epoxy Coatings and Linings for Steel Water Pipe and Fittings
  - 2. AWWA C 213—Fusion-Bonded Epoxy Coatings and Linings for Steel Water Pipe and Fittings
- C. American Society of Testing and Materials (ASTM)
  - 1. C 309—Standard Specifications for Liquid Membrane-Forming Compounds for Curing Concrete
  - 2. D 1505—Standard Test Method for Density of Plastics by the Density-Gradient Technique
  - 3. G14—Standard Test Method for Impact Resistance of Resistance of Pipeline Coatings (Falling Weight Test)
- D. National Association of Corrosion Engineers
  - 1. SP-01-88 (2006)—Standard Practice, Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates

#### 1.03 SUBMITTALS

- A. Refer to Article 7.05—Submittals to be Furnished by the Contractor for submittal requirements.
- B. The Contractor shall submit to the Engineer in accordance with Article 7.05 an affidavit of compliance stating that all coating systems furnished comply with the applicable requirements of the AWWA and ASTM Standards.
- C. Minimum of three (3) references of comparable pipeline projects within the last three (3) years. Reference information shall include:
  - 1. Organization
  - 2. Project site location
  - 3. Contact person with contact information
  - 4. Brief description of services provided

#### 1.04 MEASUREMENT AND PAYMENT

- A. Unless noted otherwise, full compensation for Work involved in complying with all requirements per this Article as shown on the Drawings, as specified in these Specifications, and as directed by the Engineer shall be considered incidental and included in the Contract Price(s) paid for the various items of Work involved; no additional time shall be allowed or payment made.

**PART 2 PRODUCTS****2.01 MATERIALS**

- A. Materials shall conform to the requirements of the AWWA Standards and the requirements of these Specifications.
- B. Unless otherwise indicated, steel pipe and fitting coating and lining options shall be fusion-bonded epoxy.
- C. *Coating for New Stainless Steel Pipe*—Coating for steel pipe shall be the following, as specified herein and as designated on the Drawings:
  - 1. Fusion-bonded epoxy coating conforming to the requirements of AWWA Standard C213 and the requirements of these Specifications.
- D. *Lining for New Stainless Steel Pipe*—Lining for pipe shall be the following, as specified herein and as designated on the Drawing.
  - 1. Fusion-bonded epoxy lining conforming to the requirements of AWWA Standard C213 and the requirements of these Specifications.
- E. *Relining for Existing Buried Stainless Steel Pipe*—Lining for pipe shall be the following, as specified herein and as designated on the Drawing.
  - 1. Liquid epoxy lining conforming to the requirements of AWWA Standard C210 and the requirements of these Specifications.

**PART 3 EXECUTION****3.01 PLACEMENT**

- A. Procedures for surface preparation and application, surface finishing, and curing as described in the AWWA standards shall be adhered to.
- B. Field joints shall be coated and lined as shown on the Drawings in accordance with the following requirements:
  - 1. The exterior of joints of fusion-bonded epoxy coated pipe shall be liquid epoxy coated conforming to AWWA C210. Liquid epoxy coating shall also be used for field repairs of fusion-bonded epoxy coating.
  - 2. A mastic shall be applied to provide a smooth, regular surface to allow tape coating to be placed without gaps, folds, or air pockets. See Article 39.01—Corrosion Control – General.
  - 3. The mastic compound shall be flexible and shall be:
    - a. “Ram-Nek,” as distributed by Hanson Concrete Products, or equal.

**3.02 QUALITY ASSURANCE**

- A. Testing shall conform to the requirements of AWWA Standards C210, C213, and these Specifications.
- B. Inspection failure over large areas, as determined by the Engineer, in any length of pipe shall be cause for rejection of the length of pipe as unfit and the pipe shall be removed immediately from the work site. The Contractor shall be responsible for replacement of rejected pipe at his/her sole cost. No extension of time for completion of the work will be provided due to rejection of pipe. The Contractor shall be responsible for arranging for and providing power as necessary for field testing.

END OF ARTICLE

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. This article covers field applied protective painting, including surface preparation, protection of surfaces, inspection, and other appurtenant work for, piping, fittings and other such surfaces designated to be painted on top of the fusion bonded epoxy shop coat.
- B. Furnishing and operating all climate-controlled environments as required by any and all coating manufacturer's application requirements.
- C. Removing, handling and disposing of the existing exterior paint, coatings and any other hazardous materials in accordance with local, state, and federal regulations and as specified.
- D. Regardless of the number of coats previously applied, at least two field coats in addition to any shop fusion bonded epoxy coats or field prime coats shall be applied to the exterior of all fully assembled above grade piping surfaces to provide uniform and consistent coverage and color.
- E. Cleaning, surface preparation, coating application, and thickness shall be as specified herein and shall meet or exceed the coating manufacturer's recommendations. When the manufacturer's minimum recommendations exceed the specified requirements, Contractor shall comply with the manufacturer's minimum recommendations. When equivalent products are acceptable to the Engineer, Contractor shall comply with this specification and the coating manufacturer's recommendations.
- F. All cleaning, surface preparation, coating application, thickness, testing, and coating materials (where available) shall be in accordance with the referenced standards of the following AWWA, ANSI, NACE, SSPC, NSF, and ASTM.

**1.02 REFERENCES**

- A. American Water Works Association (AWWA):
  - 1. AWWA C 213—Liquid Epoxy Coatings and Linings for Steel Water Pipe and Fittings
- B. American Society of Testing and Materials (ASTM)
- C. State of California Department of Transportation (Caltrans)
- D. The National Association of Corrosion Engineers (NACE)
  - 1. SSPC-SP 1—Solvent Cleaning

2. SSPC-SP 2—Hand Tool Cleaning
3. SSPC-SP 3—Power Tool Cleaning
4. SSPC-SP 5—White Metal Blast Cleaning
5. SSPC-SP 6—Commercial Blast Clearing
6. SSPC-SP 7—Brush-off Blast Cleaning
7. SSPC-SP 10—Near-White Metal Blast Cleaning
8. SSPC-SP 11—Power Tool Cleaning to Bare Metal

#### 1.03 SUBMITTALS

- A. Contractor shall submit color cards for all coatings proposed for use, together with complete descriptive specifications, manufacturer's product data sheet and the completed Coating System Data Sheets, to Engineer for review and color selection. Each product data sheet shall include application temperature limits including recoat time requirements for the ambient conditions at the site, including temperatures up to 130°F. Requests for review submitted directly to Engineer by coating suppliers will not be considered.
- B. Contractor shall submit a Coating System Data Sheet for each separately identified surface in the Coating Schedule that will be used in the project, using the appropriate Coating System Data Sheet forms (Figures 1 and 2) at the end of this section. Each field coating system shall be acceptable to the coating material manufacturer.

#### 1.04 MEASUREMENT AND PAYMENT

- A. Full compensation shall be included in the Contract prices of the various items of work.
- B. Refer to Article 21.01 Bid Items.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

- A. In addition to the coatings listed herein, equivalent products of the following manufacturers will also be acceptable:

Sigma	PPG	Porter
Rust-Oleum	MAB	Carboline Company
ICI Devoe	Tnemec	International Protective Coatings
Sherwin Williams		
- B. Whenever a coating is specified by the name of a proprietary product or of a particular manufacturer or vendor, the specified coating shall be understood as establishing the desired type and quality of coating desired. Other manufacturers'

coatings will be accepted, provided that sufficient information is submitted to enable Engineer to determine that the proposed coatings are equivalent to those named. Proposed coatings must have an equivalent range of color selections to those manufacturers specified. Information on proposed coatings and color availability shall be submitted for review in accordance with the Submittals section. Requests for review of equivalency will be accepted only from Contractor, and will be considered only after the contract has been awarded.

- C. All coatings shall conform to the air quality regulations applicable at the location of use. Coating materials that cannot be guaranteed by the manufacturer to conform, whether or not specified by product designation, shall not be used.
- D. The coatings specified have been selected on the basis of the manufacturer's statement that the VOC content of the product is 2.8 lbs. per gallon or less; in the thinned condition, unless otherwise indicated herein; however, it shall be the Contractor's responsibility to use only coating materials that are in compliance with the requirements of all regulatory agencies including the Bay Area Air Quality Management District Regulation 8 Rule 3. Local regulations may require some coatings to have a lower VOC content than specified herein.
- E. The coatings specified may meet the VOC limits in the unthinned (as shipped) condition, but may exceed the limits if thinned according to the manufacturer's recommendations. Under these conditions, the coatings shall not be thinned beyond the 2.8 lbs. per gallon limit, and if the product cannot be thinned to suit the application method or temperature requirements, another manufacturer's coating shall be used, subject to acceptance by Engineer.
- F. Some of the architectural coatings specified may contain VOC's in excess of 2.8 pounds per gallon; however, the coatings may be acceptable if supplied in containers of 1 quart or less and provided it conforms to all applicable regulations, codes, and standards.
- G. Contractor shall be responsible for ensuring the compatibility of field coatings with each other or with the coatings on shop coated or previously coated surfaces. Coatings used in successive field coats shall be produced by the same manufacturer. Coatings used in the first field coat over shop coated or previously coated surfaces shall cause no wrinkling, lifting, or other damage to underlying coats.
- H. Primers
  - Universal Primer      PPG Amercoat "Amercoat 385 Epoxy," Carboline "Rustbond," ICI Devoe "Devran 224HS," Tnemec "Series 27 F.C. Typoxy," or Sherwin-Williams "Macropoxy 646"
  - Zinc Primer            PPG Amercoat "Dimetate 9 Series," Carboline "Carbo Zinc II Series," ICI Devoe "Catha-Coat 304V," or Sherwin-Williams "Zinc Clad II Series"

## I. Intermediate and Finish Coatings

Epoxy Enamel (NSF certified systems)

Ferrous Metal Surfaces Contact with  
Treated or Raw Water

PPG Amercoat "Amerlock 400 High-Solids  
Epoxy Coating," Carboline "Carboguard 891,"  
ICI Devoe "Bar-Rust 233H," Tnemec  
"Series N140 Pota-Pox Plus," or  
Sherwin-Williams "Macropoxy 646NSF";  
immersion service

Aliphatic Polyurethane

PPG Amercoat "Amercoat 450H," Carboline  
"Carbothane 134HG," ICI Devoe  
"Devthane 379H," Tnemec "Series 1074  
Endura-Shield II," or Sherwin-Williams  
"Acrolon 218HS"

## J. Air Wash Piping and Fittings Color: Match Existing

**PART 3 EXECUTION**

## 3.01 DELIVERY AND STORAGE

- A. All coatings shall be delivered to the job in original, unopened containers, with labels intact. All coating products shall be received and stored in accordance with the coating manufacturer's recommendations. No adulterant, unauthorized thinner, or other material not included in the coating formulation shall be added to the coating for any purpose.

## 3.02 SURFACE PREPARATION

- A. All surfaces to be coated shall be clean and dry and shall meet the recommendations of the coating manufacturer for surface preparation. Freshly coated surfaces shall be protected from dust and other contaminants. Oil and grease shall be completely removed by use of solvents or detergents before mechanical cleaning is started. The gloss on previously coated surfaces shall be dulled if necessary for proper adhesion of topcoats.
- B. Shop fusion-bonded epoxy coated surfaces shall be cleaned prior to application of successive field finishing coats. This cleaning shall be done in accordance with SSPC-SP-1.
- C. Surfaces shall be free of cracks, pits, projections, or other imperfections that would interfere with the formation of a smooth, unbroken coating film, except for concrete block construction where a rough surface is an inherent characteristic.
- D. When applying touchup coating or repairing previously coated surfaces, the surfaces to be coated shall be cleaned as recommended by the coating manufacturer, and the edges of the repaired area shall be feathered by sanding or wire brushing to produce a smooth transition that will not be noticeable after the coating is applied. All coatings made brittle or otherwise damaged by heat of welding shall be completely removed.

- E. Ferrous metal surfaces in non-immersion service shall be cleaned to the degree recommended by the coating manufacturer for surfaces to be coated with epoxy enamel, except galvanized surfaces. Blast cleaning to at least SSPC-SP6 shall be used where recommended by the coating manufacturer, and may be used elsewhere at the option of Contractor, provided that no dust is permitted to settle on adjacent wet coating. Surface profile shall be at least 15 percent of the dry film thickness specified for the coating system.
- F. Hardware items such as bolts, screws, washers, springs, and grease fittings need not be cleaned prior to coating if there is no evidence of dirt, corrosion, or foreign material.
- G. When a coating system is required, remove all oil or deleterious substance with neutral detergent or emulsion cleaner or blast lightly with fine abrasive.
- H. When a coating system is required, surface preparation shall conform to the coating manufacturer's recommendations.

### 3.03 MIXING AND THINNING

- A. Coating shall be thoroughly mixed each time any is withdrawn from the container. Coating containers shall be kept tightly closed except while coating is being withdrawn.
- B. Coating shall be factory mixed to proper consistency and viscosity for hot weather application without thinning. Thinning will be permitted only as necessary to obtain recommended coverage at lower application temperatures.
- C. In no case shall the wet film thickness of applied coating be reduced, by addition of coating thinner or otherwise, below the thickness recommended by the coating manufacturer. Thinning shall be done in compliance with all applicable air quality regulations.

### 3.04 APPLICATION

- A. Coating shall be applied in a neat manner that will produce an even film of uniform and proper thickness, with finished surfaces free of runs, sags, ridges, laps, and brush marks. Each coat shall be thoroughly dry and hard before the next coat is applied. Each coat shall be a different color, if available. In no case shall coating be applied at a rate of coverage greater than the maximum rate recommended by the coating manufacturer.
- B. Coating failures will not be accepted and shall be entirely removed down to the substrate and the surface recoated. Failures include but are not limited to sags, checking, cracking, teardrops, fat edges, fisheyes, or delamination.
- C. Priming
  - 1. Edges, corners, crevices, welds, and bolts shall be given a brush coat (stripe coat) of primer before application of the primer coat. The stripe



coat shall be applied by a brush and worked in both directions. Special attention shall be given to filling all crevices with coating.

2. Abraded and otherwise damaged portions of shop-applied coating shall be cleaned and recoated as recommended by the manufacturer of the finish coating. Welded seams and other uncoated surfaces, heads and nuts of field-installed bolts, and surfaces where coating has been damaged by heat shall be given a brush coat of the specified primer. Before the specified spot or touchup coating of metal surfaces, edges, corners, crevices, welds, and bolts in the area of the spot or touchup coating shall be given a brush coat of primer. This patch, spot, or touchup coating shall be completed, and the paint film shall be dry and hard, before additional coating is applied.

D. Epoxy Enamel

1. When used, epoxy enamel shall be applied in accordance with the coating manufacturer's recommendations, including temperature limitations and protection from sunlight until top-coated.
2. When applying high build epoxy coatings with a roller or brush and where a dry film thickness of at least 4-6 mils per coat is required, two or more coats shall be applied to achieve the recommended dry film thickness equal to a spray applied coating.

- E. The total coating film thickness including intermediate coats and finish coat, shall be not less than the following:

Type of Coating	Minimum Dry Film Thickness
Epoxy enamel	
Surfaces with first coat of epoxy enamel and final coat of aliphatic polyurethane.	7 mils
Surfaces with first and second coat of epoxy enamel and final coat of aliphatic polyurethane	12 mils (10 mils DFT for epoxy plus 2 mils DFT for aliphatic polyurethane)
Other surfaces (two coats)	10 mils
Immersion service (three coats)	15 mils
Zinc, epoxy, polyurethane	
Surfaces with first coat of zinc, intermediate coat of epoxy, and final coat of aliphatic polyurethane	10 mils, 3 mils zinc, 5 mils epoxy, plus 2 mils for aliphatic polyurethane
Other (one coat)	5 mils
Other (two coats)	10 mils

## F. Weather Conditions

1. Coatings shall not be applied, except under shelter, during wet, damp, or foggy weather, or when windblown dust, dirt, debris, or insects will collect on freshly applied coating.
2. Coatings shall not be applied at temperatures lower than the minimum temperature recommended by the coating manufacturer, or to metal surfaces such as tanks or pipe containing cold water, regardless of the air temperature, when metal conditions are likely to cause condensation. When necessary for proper application, a temporary enclosure shall be erected and kept heated until the coating has fully cured.
3. Coatings shall not be applied at temperatures higher than the maximum temperature recommended by the coating manufacturer. Where coatings are applied during periods of elevated ambient temperatures, Contractor and the coatings manufacturer shall be jointly responsible to ensure that proper application is performed including adherence to all re-coat window requirements. Precautions shall be taken to reduce the temperature of the surface application, especially for metal, at elevated temperatures above 100°F including shading application area from direct sunlight, applying coating in the evening or at night, and ventilating the area to reduce the humidity and temperature.

## 3.05 REPAIRING FACTORY FINISHED SURFACES

- A. Factory finished surfaces damaged prior to acceptance by Owner shall be spot primed and recoated with materials equivalent to the original coatings. If, in the opinion of Engineer, spot repair of the damaged area is not satisfactory, the entire surface or item shall be recoated.

## 3.06 PROTECTION OF SURFACES

- A. Throughout the work, the Contractor shall use drop cloths, masking tape, and other suitable measures to protect adjacent surfaces. Contractor shall be responsible for correcting and repairing any damage resulting from its or its subcontractors' operations. Coatings spilled or spattered on adjacent surfaces which are not being coated at the time shall be immediately removed. Exposed concrete or masonry not specified to be coated which is damaged by coatings shall be either removed and rebuilt or, where authorized by Owner, coated with two coats of masonry coating.

## 3.07 FIELD QUALITY CONTROL

- A. The following inspection and testing shall be performed: surface profile, visual inspection, spark testing, adhesion testing, and wet and dry film thickness testing. All inspection and testing shall be witnessed by Engineer.
- B. The surface profile for ferrous metal surfaces shall be measured for compliance with the specified minimum profile. The surface profile for concrete shall comply with SSPC 13/NACE 6 Table 1 for severe service.

- C. The surface of the protective coatings shall be visually inspected.
- D. Coating film thickness shall be verified by measuring the film thickness of each coat as it is applied and the dry film thickness of the entire system. Wet film thickness shall be measured with a gauge that will measure the wet film thickness within an accuracy of  $\pm 0.5$  mil. Dry film thickness shall be measured in accordance with SSPC-PA 2.
- E. Coatings shall be spark tested by the coating manufacturer using an acceptable electrical spark tester set at the recommended voltage. Engineer shall observe the spark testing and shall verify the testing equipment is working properly before the spark testing of the coating is started. The electrode movement shall be continuous and shall proceed in a systematic manner that will cover 110 percent of the coated surface.
- F. Spark testing for coatings on metal shall be done in accordance with ASTM D5162. Spark testing for coating on concrete shall be done in accordance with ASTM D4787. All detected holidays and pinholes shall be marked and repaired as recommended by the coating material manufacturer.
- G. An adhesion test, when required, shall be conducted on a properly prepared and coated steel surface that is acceptable to the coating material manufacturer and Engineer. The test area shall be at least 2 square feet or larger to allow a minimum of three tests to be conducted. The test area shall be coated with the specified system and cured as recommended by the coating material manufacturer. Pull-off strength adhesion tests of the coating shall be conducted by the coating material manufacturer in accordance with ASTM D4541 using an Elcometer tensile adhesion tester. At least three adhesion tests shall be conducted and the results averaged. Adhesion strength shall equal or exceed the minimum adhesion strength recommended by the coating material manufacturer and shall exceed the tensile strength of the concrete.
- H. If the coating fails the adhesion test, the cause of the failure shall be determined and corrected before reconducting the test.

### 3.08 FIELD PRIMING SCHEDULE

- A. In general, stainless steel, and steel surfaces of equipment are specified to be shop fusion-bonded epoxy lined and coated. Any such surfaces which have not been shop coated shall be field primed. Damaged or failed shop coatings which have been determined unsuitable by Engineer shall be removed and the surfaces shall be field coated, including prime coat (if any). Primers used for field priming, unless otherwise required for repair of shop coating, shall be:

Surface to be Primed	Material
Steel and cast iron, surfaces to be coated with Epoxy enamel	Same as finish coats or inorganic zinc
Stainless steel	Epoxy enamel

Unless otherwise recommended by the coating manufacturer or specified herein, priming will not be required on metal surfaces specified to be coated with epoxy enamel.

### 3.09 FINISH COATING SYSTEMS

A. The following schedule lists coatings systems and coating system designations.

No.	Finish Coating Systems	Coating System Designation						
		A	C	E	F	G	H	P
4.	Epoxy enamel – Three coats	X	X	X				
6.	Epoxy enamel – First coat Aliphatic polyurethane – Finish coat	X	X	X	X	X		X

B. Items to be shop finished include the following. Shop finishing shall be in accordance with the coating manufacturer's recommendations.

1. Other surfaces where blast cleaning cannot be or is not recommended to be performed in the field.
2. Other items as otherwise specified.

C. Items to be field coated include the following. Field coating shall be in accordance with the field priming schedule, the coating schedule, and the manufacturer's recommendations.

1. Surfaces not indicated to be shop finished and surfaces where blast cleaning can be performed in the field.
2. All interior ferrous metal surfaces except stainless steel.
3. Other items as otherwise specified.

### 3.10 METAL SURFACES COATING SCHEDULE

Surface to be Coated	Finish Coating System
Stainless steel, and steel piping above grade exposed to the elements and to view outdoors, including valves, fittings, flanges, bolts, supports, and accessories, and galvanized surfaces after proper priming.	A6
All metal surfaces, unless otherwise specified, which will be submerged or buried, all or in part, including valves, but excluding piping laid in the ground.	E4
Stainless steel and steel piping in vaults, manholes, basins, and similar locations, including valves fittings, flanges, bolts, supports, and accessories.	A4

**3.11 QUALITY ASSURANCE**

- A. The coating applicator and coating manufacturer shall review and approve in writing the coating manufacturer's written recommendations for the coating system and the intended service. Any variations from the specifications or the coating manufacturers published recommendations shall be submitted in writing and approved by the coating manufacturer. The coating manufacturer shall observe the surface preparation, mixing, and application of the coating systems and submit a written report of his observations and any additional recommendations.

SURFACE DESCRIPTION	SYSTEM NO.

SURFACE PREPARATION DESCRIPTION	
<input type="checkbox"/> Solvent SSPC-SP1	
<input type="checkbox"/> Ferrous Metal Nonimmersion SSPC-SP6	<input type="checkbox"/> Ferrous Metal Immersion
<input type="checkbox"/> SSPC-SP10	<input type="checkbox"/> SSPC-SP-5
<input type="checkbox"/> Other	

COATING	DFT mils [ $\mu\text{m}$ ]	MANUFACTURER AND PRODUCT
First Coat (Primer)		
Second Coat		
Third Coat		
Total System		Not less than minimum thickness specified.

Notes: (Attached if needed)

Project:		
Coatings Manufacturer:		Initials: _____
Painting Applicator:		Initials: _____
SCVWD	COATING SYSTEM DATA SHEET	Figure 1

<b>SHOP PRIMED SURFACE DESCRIPTION</b>	<b>SYSTEM NO.</b>	<b>-F</b>

<b>SURFACE PREPARATION DESCRIPTION</b>
<input type="checkbox"/> Solvent SSPC-SP1 <input type="checkbox"/> Other

<b>COATING</b>	<b>DFT mils [μm]</b>	<b>MANUFACTURER AND PRODUCT</b>
<b>Shop (Primer)</b>		(Identify Product/Type)
<b>Touchup</b>		
<b>Intermediate Coat</b>		
<b>Finish Coat</b>		
<b>Total System</b>		Not less than minimum thickness specified.

Notes: (Attached if needed)
-----------------------------

Project:		
Coatings Manufacturer:		Initials: _____
Painting Applicator:		Initials: _____
<b>SCVWD</b>	<b>COATING SYSTEM DATA SHEET</b>	<b>Figure 2</b>

END OF ARTICLE

## **APPENDIX A**

Agreement  
Payment Bond  
Performance Bond  
Escrow Agreement for Security Deposits in Lieu of Retention



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The following is an agreement entered into as of \_\_\_\_\_ by and between the SANTA CLARA VALLEY WATER DISTRICT, State of California, hereinafter referred to as "District" and \_\_\_\_\_, hereinafter referred to as "Contractor."

For the considerations hereinafter specified, Contractor and District agree as follows:

#### **ARTICLE I: Work to Be Done and Documents Forming the Contract**

Contractor agrees to do all the work and furnish all materials necessary to construct and complete, in accordance with the Specifications the following work:

#### **SANTA TERESA WATER TREATMENT PLANT AIR WASH PIPELINE REPLACEMENT PROJECT**

**Project No. 93764004, Contract No. C0662**

Said work shall be performed to the satisfaction of the Engineer all in accordance with the Drawings, Specifications, Notice to Bidders, and the Proposal of the Contractor, all of which documents are hereby specially referred to and by such reference made a part of this Contract.

#### **ARTICLE II: Contract Price**

District hereby agrees and promises to pay to Contractor the sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_).

For the performance of said work; provided, however, that the above mentioned sum is one determined by the Proposal of Contractor as based upon the estimated amount of work to be done, and should there be any variance between the estimated amount of work to be done and the actual amount of work performed, then the final payment price shall be computed on the basis of the unit prices contained in the Proposal of Contractor.

#### **ARTICLE III: Completion of Contract**

It is hereby agreed that the work called for under this Contract, in all its parts and requirements, shall be completed before the expiration of **504** calendar days from the First Chargeable Day of the Contract as stated on the Notice to Begin Work unless the time for completion is extended, as allowed by the Specifications.

#### **ARTICLE IV: Bonds Required**

This Contract shall have no force or effect whatsoever unless and until Contractor delivers to District a Payment Bond in the sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_).

Nor shall such Contract be effective until Contractor also gives a good and sufficient bond in the sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_)  
for the faithful performance of the work to be done under the terms of this Contract.



---

**ARTICLE V: Certification by Contractor**

Contractor hereby certifies as follows:

“I certify that I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for workers’ compensation or to undertake self insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this Contract.”

**ARTICLE VI: Gift Policy Observance**

Contractor hereby acknowledges that District policy prohibits the acceptance by District personnel of gifts of any kind from vendors or contractors. Contractor shall honor this policy by not sending or bringing gifts to the District.

IN WITNESS WHEREOF, Contractor and District have caused this Agreement to be subscribed as of the day and year first hereinabove written.

Date Contractor signature affixed:

\_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

Federal I.D. \_\_\_\_\_

“Contractor”

SANTA CLARA VALLEY WATER DISTRICT

Date District signature affixed:

\_\_\_\_\_

By \_\_\_\_\_

Chair/Board of Directors

BE IT KNOWN BY THESE PRESENTS:

WHEREAS, the Santa Clara Valley Water District (hereinafter called "the Public Entity"), and \_\_\_\_\_ (hereinafter designated as "Principal") have entered into an agreement for the **SANTA TERESA WATER TREATMENT PLANT AIR WASH PIPELINE REPLACEMENT PROJECT** which said agreement is dated as of \_\_\_\_\_, 20\_\_\_\_; and

WHEREAS, said Principal is required by California Civil Code Sections 9550 and 9554 to furnish a bond in connection with said agreement;

NOW, THEREFORE, we, the Principal and \_\_\_\_\_, a corporation duly organized under the laws of the State of \_\_\_\_\_, having its principal place of business at \_\_\_\_\_ in the State of \_\_\_\_\_, and authorized to do business in the State of California, hereinafter "Surety," are held and firmly bound unto the Public Entity in the penal sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_) lawful money of the United States of America for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, Administrators, and successors and assigns, jointly and severally, firmly by these presents.

1. THE CONDITION OF THIS OBLIGATION IS SUCH that if the Principal or the Principal's subcontractor fails to pay any of the persons named in Section 9100, or amounts due under the California Unemployment Insurance Code with respect to work or labor performed under the agreement, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principal and the Principal's subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor, that the Surety or Sureties will pay for the same, in an amount not exceeding the sum hereinabove specified, and also, in case suit is brought upon the bond, a reasonable attorney's fee, to be fixed by the court. The Principal may require of the Principal's subcontractors a bond to indemnify the Principal for any loss sustained by the Principal because of any default by the Principal's subcontractors under Section 9554 of the California Civil Code.
2. This bond shall inure to the benefit of any of the persons named in Section 9100 of the California Civil Code, so as to give a right of action to such persons or their assigns in any suit brought upon this bond.
3. Surety, for value received, hereby agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or to the Contract Documents accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the other portions of the Contract Documents.
4. Should the condition of this bond be fully performed, then this obligation shall become null and void; otherwise, it shall be and remain in full force and effect.



---

IN WITNESS WHEREOF two identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety or Sureties above named on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**PRINCIPAL:****SURETY:**

---

Signature

---

Signature

---

Name

---

Name

(Seal)

---

Title

---

Title

---

Address

---

Address

NOTE: Signature of those executing for Surety must be properly acknowledged.

BE IT KNOWN BY THESE PRESENTS: That

WHEREAS, the Santa Clara Valley Water District, State of California, has awarded to

(hereinafter designated as "Principal") a Contract for **SANTA TERESA WATER TREATMENT PLANT AIR WASH PIPELINE REPLACEMENT PROJECT**, and

WHEREAS, said Principal is required under the terms of said Contract to furnish a bond for the faithful performance of said Contract,

NOW, THEREFORE, we, the Principal and \_\_\_\_\_ as Surety, are held and firmly bound unto the Santa Clara Valley Water District (hereinafter called "District") in the sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the above bounden Principal, or heirs, executors, administrators, successors, or assigns shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the said Contract and any alteration thereof made as therein provided, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless District, its officers, agents, and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

And the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligation on this bond, and does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work or to the Specifications.

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



---

IN WITNESS WHEREOF two identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by Principal and Surety above named, on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

**PRINCIPAL:**

**SURETY:**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name

\_\_\_\_\_  
Name (Seal)

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Address

\_\_\_\_\_  
Address

NOTE: Signature of those executing for Surety must be properly acknowledged.



Escrow Account No.: \_\_\_\_\_

**This Escrow Agreement is made and entered into by and between:**

SANTA CLARA VALLEY WATER DISTRICT whose address is 5750 Almaden Expressway,  
San Jose, CA 95118 hereinafter called "**Owner**," and

\_\_\_\_\_ whose address is \_\_\_\_\_ hereinafter called  
"**Contractor**," and

\_\_\_\_\_ whose address is \_\_\_\_\_ hereinafter called  
"**Escrow Agent**," and

**For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:**

1. Pursuant to §22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to the Construction Contract entered into between the Owner and Contractor for 1 in the amount of \$\_\_\_\_\_ dated \_\_\_\_\_ (hereinafter referred to as the "Contract"). Alternatively, on written request of the Contractor, the Owner shall make payments of the retention earnings directly to the Escrow Agent. When the Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify the Owner within 10 days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the Owner and Contractor. Securities shall be held in the name of **Santa Clara Valley Water District**, and shall designate the Contractor as the beneficial owner.
2. The Owner shall make progress payments to the Contractor for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.
3. When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time that the escrow created under this contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.
4. Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor, and Escrow Agent.



- 
5. The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.
  6. Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from the Owner to the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.
  7. The Owner shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven days' written notice to the Escrow Agent from the owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the Owner.
  8. Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.
  9. Escrow Agent shall rely on the written notifications from the Owner and the Contractor pursuant to Sections (5) to (8), inclusive, of this Agreement and the Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.
  10. The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:
  11. Throughout the term of this Escrow Agreement, the Escrow Agent herein agrees to provide monthly statements indicating the account balances and status of the account, directly to the Owner, the Santa Clara Valley Water District, at the address provided below, to the attention of the District's representative identified below. The Escrow Agent may submit a request to provide such statements in electronic format.
  12. The Escrow Agent must provide written notice to the Owner in advance of any action that will negatively impact the account.



CONTRACT DOCUMENTS  
**Escrow Agreement for Security  
Deposits in Lieu of Retention**  
Page 3 of 3

**On behalf of Owner:**

Signature	Date
<hr/>	
Name <i>Capital Program Deputy Operating Officer Designated Engineer</i>	
<hr/>	
Title	
<hr/>	
<i>5750 Almaden Expressway San Jose, CA 95118</i>	
<hr/>	
Address	

**On behalf of Contractor:**

Signature	Date
<hr/>	
Name	
<hr/>	
Title	
<hr/>	
Address	

**On behalf of Escrow Agent:**

Signature	Date
<hr/>	
Name	
<hr/>	
Title	
<hr/>	
Address	

At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

**IN WITNESS WHEREOF**, the parties have executed this Agreement by their proper officers on the date first set forth above.

**OWNER:**

Signature	Date
<hr/>	
Name <i>Capital Program Deputy Operating Officer Designated Engineer</i>	
<hr/>	
Title	
<hr/>	
<i>5750 Almaden Expressway San Jose, CA 95118</i>	
<hr/>	
Address	

**CONTRACTOR:**

Signature	Date
<hr/>	
Name	
<hr/>	
Title	
<hr/>	
Address	

## **APPENDIX B**

### **Guidelines for Contractor's As-Built Mark-Ups or Engineers Record Drawings**

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## ***Guidelines for Contractor's As-Built Mark-Ups or Engineer's Record Drawings***

Santa Clara Valley Water District  
CADD Services Unit

Version: 1.1 Effective Date: December 2009	Document Number <b>CADD G101</b>
---	-------------------------------------

**EXTERNAL USERS:**

*The version provided by the “District” represents the applicable version.*

**INTERNAL “DISTRICT” STAFF:**

*Printed or downloaded versions are for reference only. See the CADD Services Unit website for released version.*

## **Guidelines for Contractor’s As-Built Mark-Ups or Engineer’s Record Drawings**

### **CADD Services Unit**

These guidelines were developed and written by Emmanuel Aryee (CADD Services unit) and the example figures were provided by Roberto Parmituan (Construction Inspection unit). They were then reviewed by the Plans and Specifications Standardization team.

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## 1.0 REDLINE MARKING IN THE FIELD OR THE OFFICE

Redline mark ups should be neat, legible, clear, and orderly and should accurately record and reflect the actual as-built condition.

It should be done with the correct symbols, lines, lettering and text, details, dimensioning, etc. using red pencil or ink.

All construction changes are based on authorized change documents or Engineer's instructions. These documents are kept in the Project or Construction files.

Change documents include addendum, request for information (RFI), contract change order (CCO), engineers work order or extra work order (EWO), field memo, etc. See Figure 4 & 6. It is not acceptable to attach change documents to the drawings to avoid having to mark up changes on the drawings. Changes should be interpreted and then transferred by redline markings on to the drawing sheets; they should be referred to in the listing of the changes or revisions in the title block of the drawing sheet. See Figure 4 to 8.

Already drafted changes, sketches, diagrams of the changes (not the complete change document) may be attached on blank spaces on the drawing sheet or a separate blank sheet, (not to cover the original drawing information) to show or illustrate the extent of the changes, if that will be helpful.

Features, items, details that were changed should be clearly detailed, dimensioned, located (survey information, tying to control lines, other features or monuments, station offsets or reference lengths, distances, etc.) and described in detail with lines, lettering & text, etc. with redline mark up.

Redline mark ups should be done in a manner that enables any competent technician or drafter to draft the as-built mark-up or the record drawings with minimum difficulty.

Redline marking includes making changes, additions and/or deletions representing the actual construction changes for the as-built drawings or changes authorized by the engineer on the record drawings.

### 1.1 CHANGE

A change is made when an item(s) on the drawing sheet is modified or replaced with completely new item(s). It may involve the change of a simple line, dimension, note or re-sketch of a part or a component. Only those areas of a drawing that are affected should be marked up. Item(s) changed should be clouded.

**Clouding**—The use of a cloud to surround the area or item, text or symbol changed so as to make the changes stand out and be easily identified. The original content that is not affected by the change is left unclouded. See Figure 8.

### 1.2 ADDITIONS

Additions occur when new item(s) are introduced on to the drawing sheet to supplement or clarify information without modifying or replacing the original items. When additions are made to the drawings that affect only the drawing content, the additions should also be clouded since they are revisions to the original drawings.



### 1.3 DELETIONS

Deletions occur when features, details or items on the drawings are not constructed, are removed, are changed and/or replaced.

When preparing As-built drawings, all original drawing details, items are preserved. Deleted items should not be erased or removed from the marked up drawing. Deletions are shown by **crossing** out the deleted elements, details, lines, text, symbols, or any other items involved, with one of these methods;

- a slanted/horizontal line (strike-out line) across the element,
- a heavy “X” over the element,
- a bold, big X across a major element or across the entire drawing sheet.

The area or item affected should be clouded to indicate the limits of removal. See Figure 8.

### 2.0 ADDITIONAL SHEETS

When changes involve the incorporation of new additional sheet or sheets, it may or may not be necessary to do clouding on the original sheet. If there is a reference to a new sheet in the set, then the reference area should be clearly clouded and the call out to the additional sheet made. Otherwise the new drawing should be marked as normal but tracking notation should show that this is an additional sheet with the original sheet left intact.

In cases where the marking up of several changes on the same sheet leaves the drawing content unclear, crowded, or when features and items become unidentifiable or make the drawing unreadable, use of additional sheets should be considered.

### 3.0 TRACKING OF “AS-BUILT” CHANGES OR REVISIONS

All changes marked up must be tracked. They must be clearly identified with the triangle symbol with the revision number (used in the change document) or the letters “AB” embedded (if no revision numbers are used). The triangle symbol should be placed by the side of all changes, outside the cloud, on the affected drawing sheet.



**Figure 1—As-Built (AB) Triangle Symbol**


A subscript representing the number (#) assigned to track and identify the particular change or revision is placed by the triangle symbol as shown above in Figure 1.

#### **4.0 LISTING OR RECORDING OF CHANGES OR REVISIONS**

All changes that have been done since the final (construction) drawings were issued must be listed or recorded on the Contractor's "As-Built" drawing sheets and/or the Engineer's record drawings.

Changes made during construction must be listed or recorded and identified under the revision section of the title block of the drawing sheet. Each listing should be identified with the corresponding number (subscript) of the triangle symbol. The listing consist of a short description of the change and an abbreviated name of the change document such as CCO #2 for contract change order number 2, placed in brackets, under the "DESCRIPTION" heading.

It could also be "as per the Engineer instructions" for some of the changes done under the direct instructions of the Engineer. It must include a date and the initials of the person who authorized the change. See Figure 2.

REV	DESCRIPTION	DATE	APPR.
	1. REMOVE AND REPLACE EXISTING PIPE SYSTEM (LOC #1)	08/01	S.C.
	2. REVISE ANODE LEAD WIRE (CCO #2)	05/02	D.M.

**Figure 2—Listing or Recording of Changes**

## 5.0 SIGNING OF THE AS-BUILT OR THE RECORD DRAWINGS

Each sheet must be signed and dated by the contractor's representative for the contractor's as-built mark-ups. The representative must also include his/her printed name and his/her company's name. Similarly the Engineer must do the same for the record drawings. See sample below.

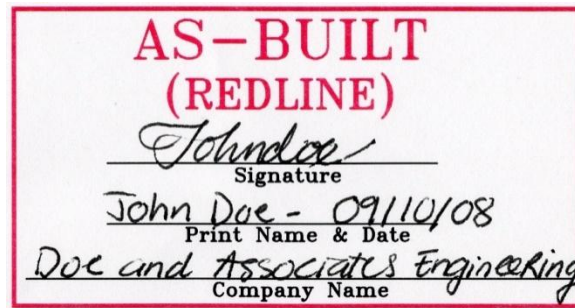


Figure 3—Sample of As-Built Signature Stamp

## FC 825 (04-10-86)

John Doe

(Resident Inspector)

R. B. Construction Co., Inc.

(Contractor, Utility, etc.)

## PWTP Landscaping

RFI Consec. No.: 4

C0526


Reply Needed By:

Feb. 12, 2008

Item No.	INFORMATION ACTION NEEDED	Ref. Spec/Plan No.
1.	An existing buried concrete block was discovered during the trench excavation for the irrigation mainline. Location is shown in the attached drawing.	PLANSHEET I-4
	This buried concrete block will not allow for the installation of the proposed irrigation mainline in the location shown. Please provide direction on how to proceed.	

### Figure 4—Request for Information

**ENGINEER'S RESPONSE**

Santa Clara Valley Water District 

**REQUEST FOR INFORMATION**  
FC 925 (04-10-86)

To: John Doe (Resident Inspector) Date: Feb. 6, 2008

From: R. B. Construction Co., Inc. (Contractor, Utility, etc.) Contractor File No.: 001

Contract: PWTP Landscaping RFI Consec. No.: 4

Contract No.: C0526 Reply Needed By: Feb. 12, 2008

Item No.	INFORMATION ACTION NEEDED	Ref. Spec/Plan No.
1.	An existing buried concrete block was discovered during the trench excavation for the irrigation mainline. Location is shown in the attached drawing.	PLANSHEET I-4
	This buried concrete block will not allow for the installation of the proposed irrigation mainline in the location shown. Please provide direction on how to proceed.	

**DISTRIBUTION:** Pink = retained by Initiator 3 copies to Resident Inspector

Item No.	REPLY	Extra WO Forthcoming (Yes/No)
1.	Please re-route/re-align the irrigation line installation as shown in the attached drawing.	TBD

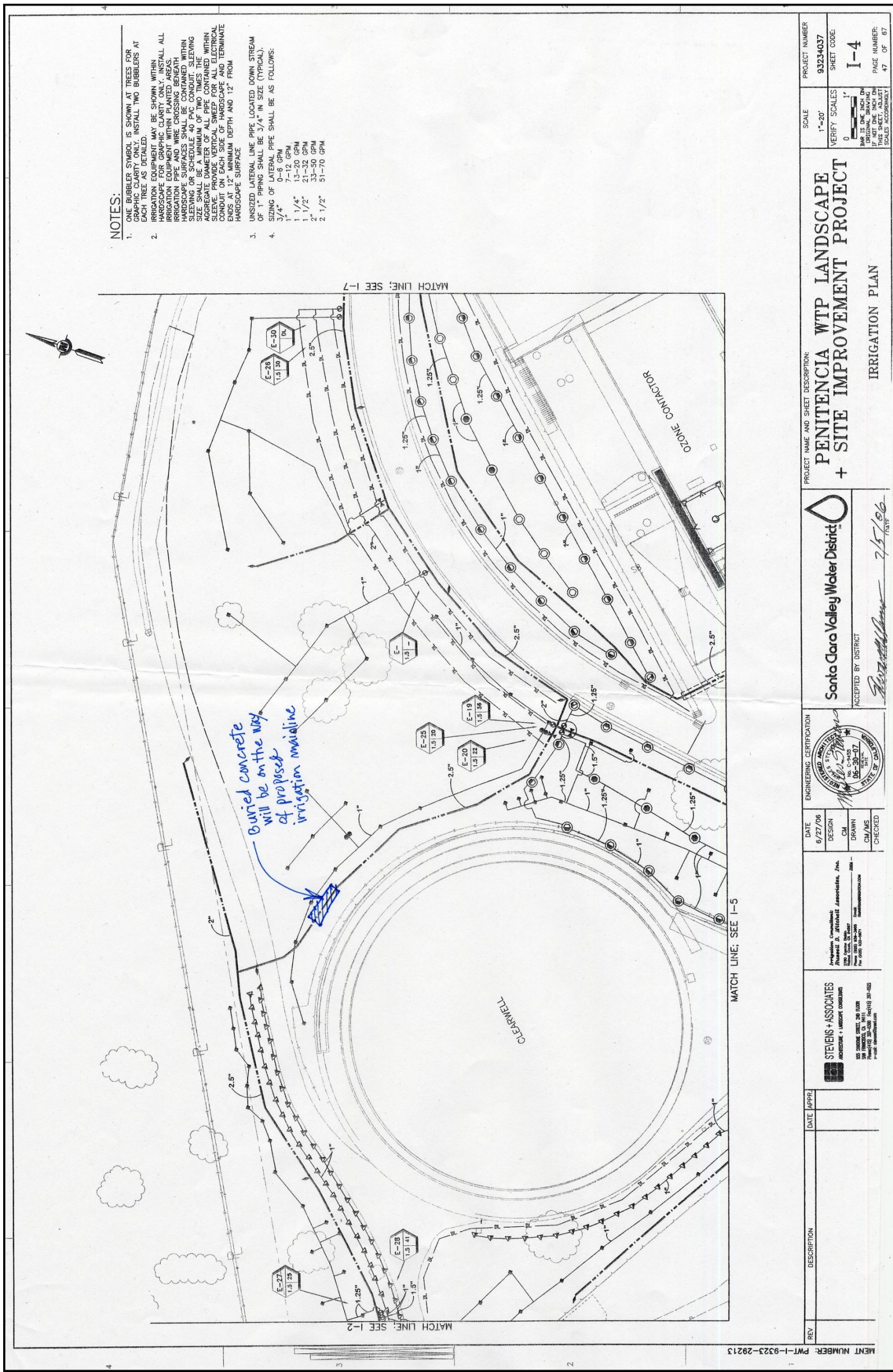
Design Consultant:	Project Engineer <u>Mr. Smart</u> Date: <u>2/11/08</u>	Resident Inspector <u>John Doe</u> Date: <u>2/11/08</u>
--------------------	---	--

**NOTICE TO CONTRACTOR:** This form has been designed to expedite responses to your inquiries. You may include more than one request on one form, but separate forms should be used for the different construction disciplines, e.g., architectural; civil; structural; mechanical; electrical.

**Distribution:** White = Retained by Resident Inspector  
Pink = Initiator  
Yellow = Project Engineer  
Goldenrod = Returned to Initiator with reply

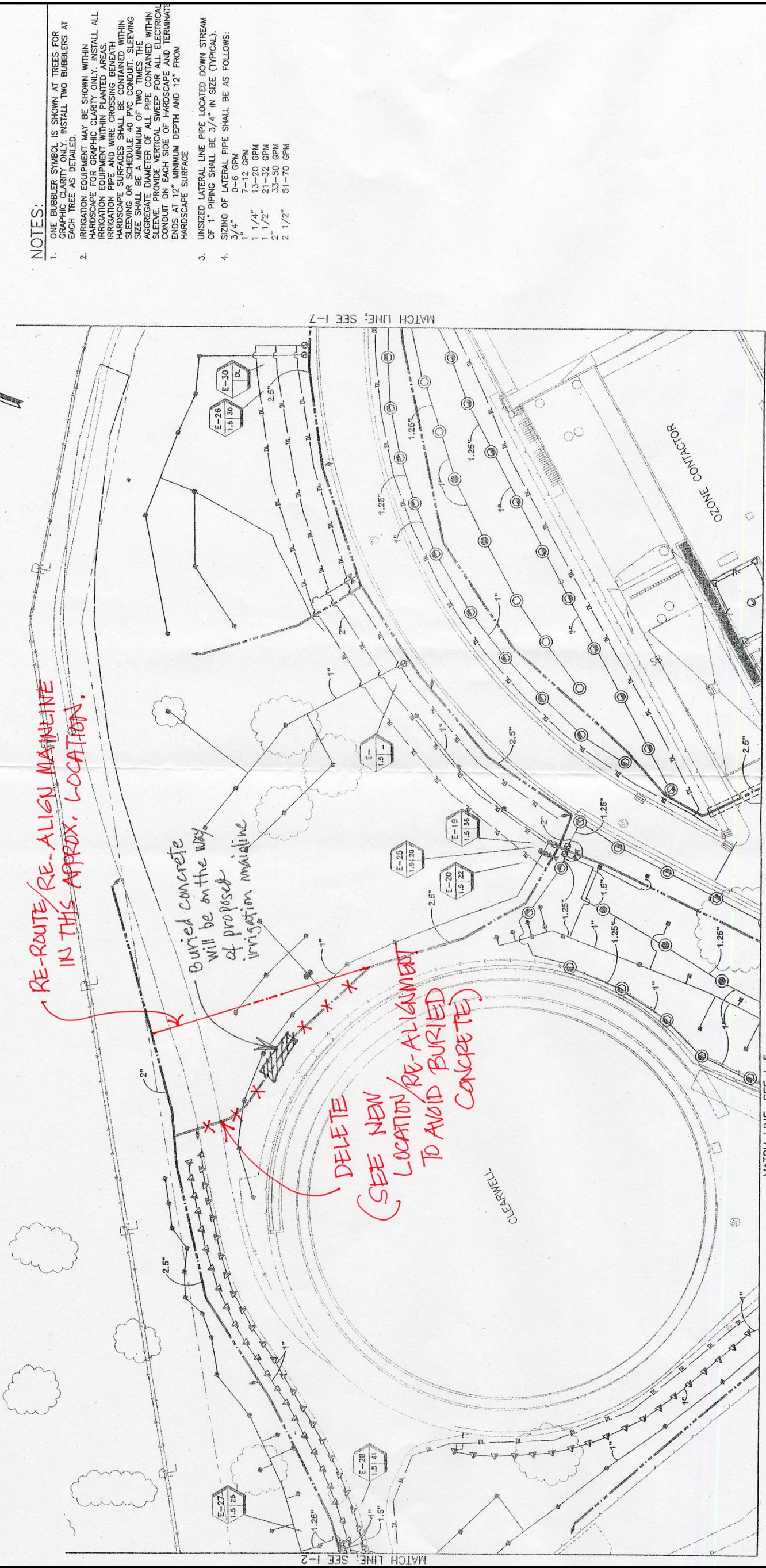
**Figure 5—Engineer's Response to RFI**







attachment to: ENGINEER'S REPLY TO RFI #4



Figure

7—Mark-Up on Drawing Showing Engineer's Response to RFI



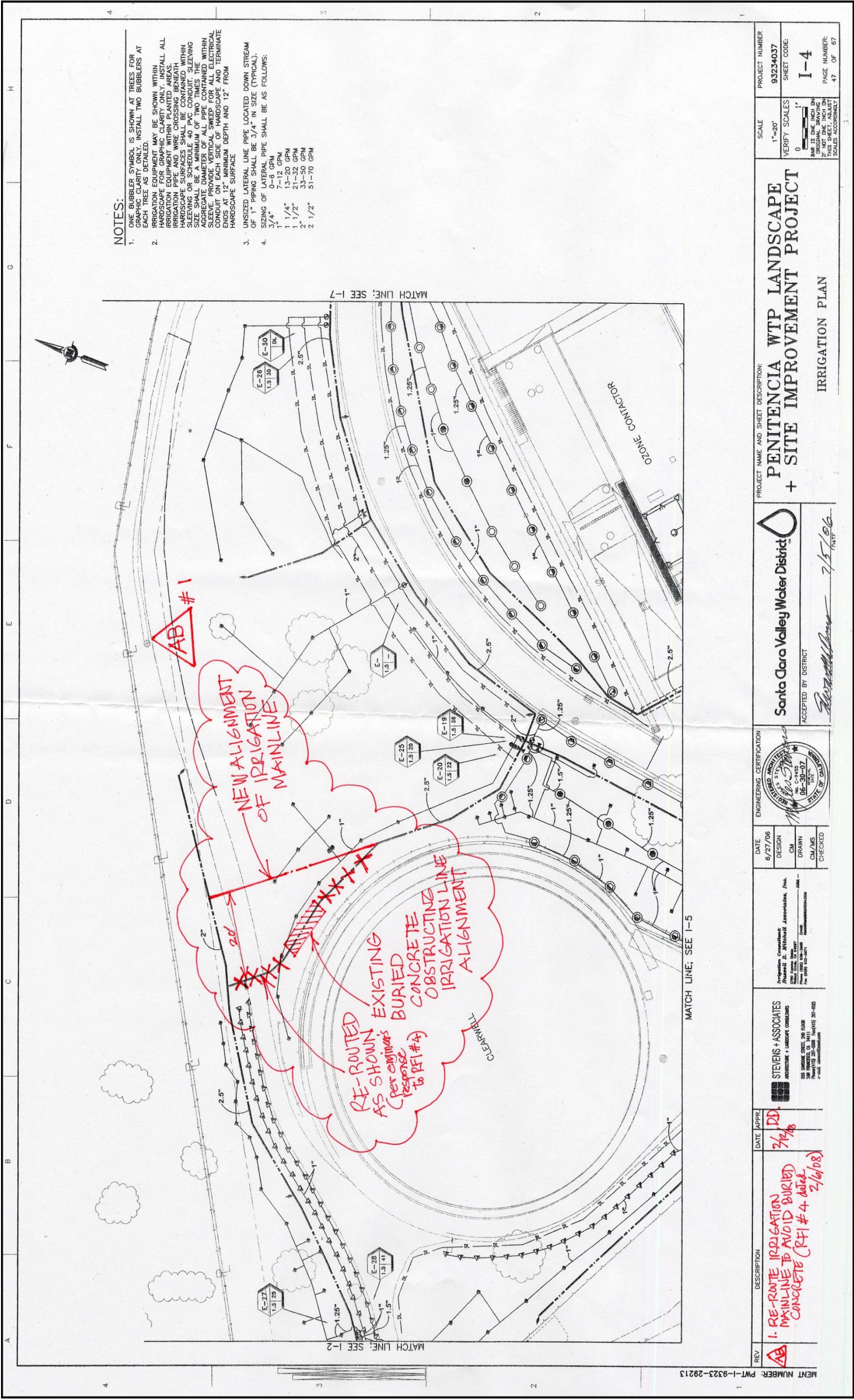


Figure 8—Contractor's Mark-Up Showing Actual Field Work



## **APPENDIX C**

### **Migratory Bird Permit Memorandum Solid Materials Management Report**

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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Washington, Washington, D C 20240

MBPM-2

Date: APR 15, 2003

### MIGRATORY BIRD PERMIT MEMORANDUM

**SUBJECT:** Nest Destruction

**PURPOSE:** The purpose of the memorandum is to clarify the application of the Migratory Bird Treaty Act (MBTA) to migratory bird nest destruction, and to provide guidance for advising the public regarding this issue.

**POLICY:** The MBTA does not contain any prohibition that applies to the destruction of a migratory bird nest alone (without birds or eggs), provided that no possession occurs during the destruction. To minimize MBTA violations, Service employees should make every effort to inform the public of how to minimize the risk of taking migratory bird species whose nesting behaviors make it difficult to determine occupancy status or continuing nest dependency.

The MBTA specifically protects migratory bird nests from *possession, sale, purchase, barter, transport, import, and export, and take*. The other prohibitions of the MBTA—*capture, pursue, hunt, and kill*—are inapplicable to nests. The regulatory definition of *take*, as defined by 50 CFR 10.12, *means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect*. Only *collect* applies to nests.

While it is illegal to collect, possess, and by any means transfer possession of any migratory bird nest, the MBTA does not contain any prohibition that applies to the destruction of a bird nest alone (without birds or eggs), provided that no possession occurs during the destruction. The MBTA does not authorize the Service to issue permits in situations in which the prohibitions of the Act do not apply, such as the destruction of unoccupied nests. (Some unoccupied nests are legally protected by statutes other than the MBTA, including nests of threatened and endangered migratory bird species and bald and golden eagles, within certain parameters.)

However, the public should be made aware that, while destruction of a nest by itself is not prohibited under the MBTA, nest destruction that results in the unpermitted take of migratory birds or their eggs, is illegal and fully prosecutable under the MBTA.

Due to the biological and behavioral characteristics of some migratory bird species, destruction of their nests entails an elevated degree of risk of violating the MBTA. For example, colonial nesting birds are highly vulnerable to disturbance; the destruction of unoccupied nests during or near the nesting season could result in a significant level of take. Another example involves

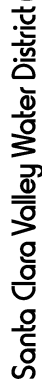
ground nesting species such as burrowing owls and bank swallows, which nest in cavities in the ground, making it difficult to detect whether or not their nests are occupied by eggs or nestlings or are otherwise still essential to the survival of the juvenile birds. The Service should make every effort to raise public awareness regarding the possible presence of birds and the risk of violating the MBTA, the Endangered Species Act (ESA), and the Bald and Golden Eagle Protection Act (BGEPA), and should inform the public of factors that will help minimize the likelihood that take would occur should nests be destroyed (i.e., when active nesting season normally occurs).

The Service should also take care to discern that persons who request MBTA permits for nest destruction are not targeting nests of endangered or threatened species or bald or golden eagles, so that the public can be made aware of the prohibitions of the ESA and the BGEPA against nest destruction.

In situations where it is necessary (i.e., for public safety) to remove (destroy) a nest that is occupied by eggs or nestlings or is otherwise still essential to the survival of a juvenile bird, and a permit is available pursuant to 50 CFR parts 13 and 21, the Service may issue a permit to take individual birds.

A handwritten signature in cursive script, reading "Steve Williams", positioned above a horizontal line.

Director



# SOLID MATERIALS MANAGEMENT REPORT

FC 1810 (07-21-16)

Project Name:		Project Number:	
Contract Number:	Reporting period (month and year): From: To:		
Contractor Name:	Phone Number:		FAX Number:
Street Address:		City, State, and Zip:	
Preparer's Name (please print):		Signature:	Date:

## A. Construction and Demolition Waste Management Report

**Note 1:** Earth and rock material, ground water, and construction and demolition waste material that contains contaminated or hazardous materials shall not be reported as either waste material diverted from or disposed to landfill. See specifications for project-specific list of construction and demolition waste materials.

**Note 2: Contractor to attach facility receipts for loads taken for disposal in landfill and loads taken for recovery/recycling.**

**Note 3:** If no minimum diversion rate is specified, contractor has the option of reporting material quantity by weight (ton) or volume (cubic yard).

Name and Address of Recycling or Disposal Facility	Type of Material		Type of Activity	Quantity of Material Taken to Landfill (ton)	Quantity of Material Diverted From Landfill (ton)	Total Material Generated (ton)	Material Diversion Rate (%)
	Enter letter as follows: A = asphalt C = concrete M = metal D = mixed debris W = wood/cleared vegetation O = other (described) <b>See Note 1.</b>	Enter number as follows: 1 = source-separated materials recycling 2 = on-site reuse 3 = mixed debris recycling 4 = reuse of salvageable items 5 = disposal at landfill or transfer station 6 = other (described)					
			Total Quantity Taken to Landfill (ton)				
			Total Quantity Diverted from Landfill (ton)				
			Total Material Generated (ton)				
			Total Material Diversion Rate (%)				

## B. Post-Consumer Recycled Content Report

**Note 1: Contractor to attach documentation certifying % of post-consumer recycled material content**

Material/Product Description	Manufacturer (Name, Address, and Phone Number)	Post-Consumer Recycled Content Required per Contract (%)	Certified Post-Consumer Recycled Content (%)
Specification writer to list material/equipment specified to be furnished/installed which must contain a minimum specified percentage of post-consumer recycled material	(Contractor to complete)	Specification writer to list, for each material/product, the minimum % content of post-consumer recycled material	(Contractor to complete)

**Contractor Certification:** I certify under penalty of perjury that the information provided in this form is complete and accurate.

**I have reviewed the information submitted in this report for completeness.**

SIGNATURE:	DATE OF REPORT:	ENGINEER SIGNATURE:	DATE:
PRINT NAME AND TITLE:		PRINT NAME:	

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## **APPENDIX D**

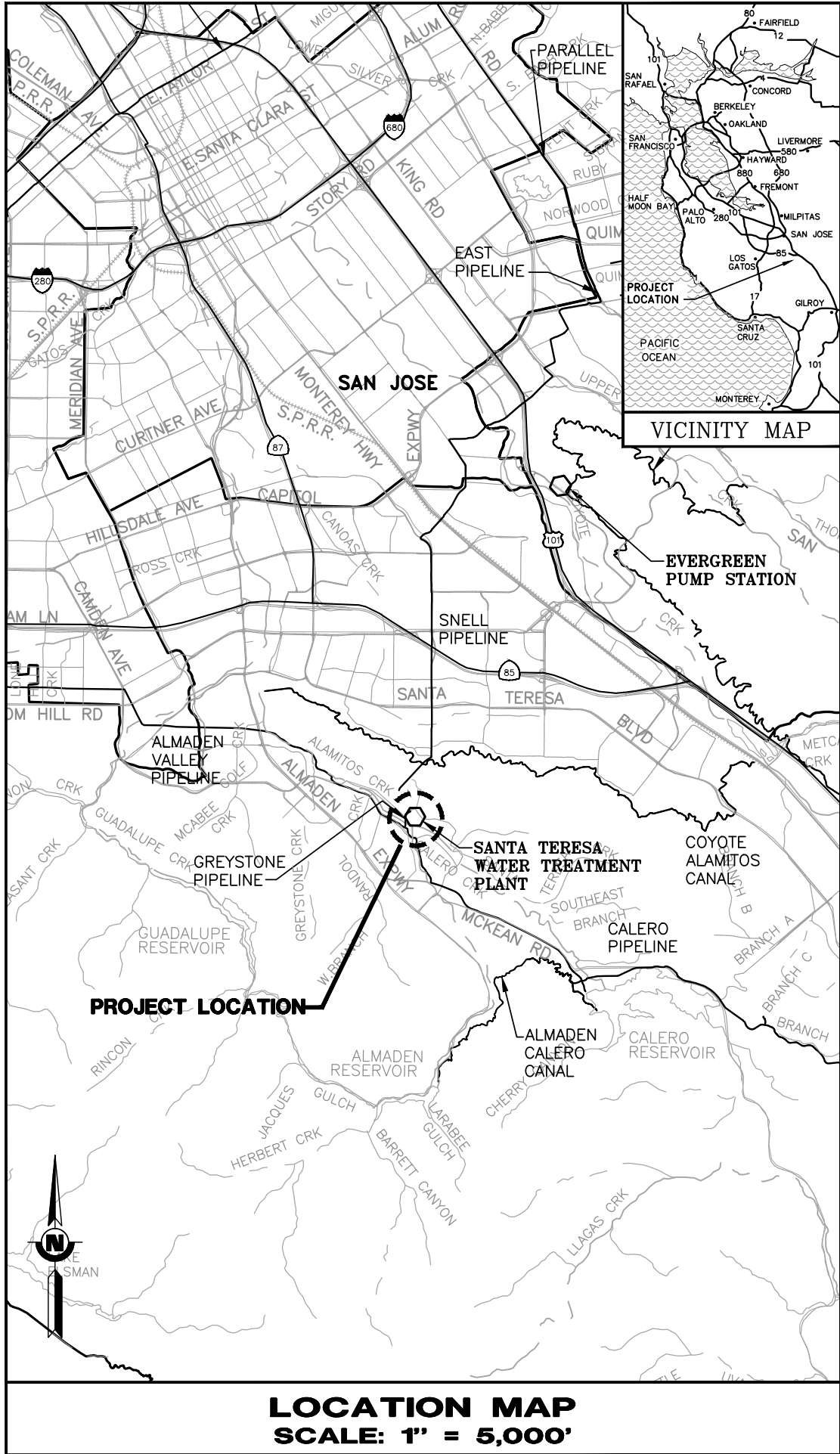
### **Plan Set for the Construction of Santa Teresa Water Treatment Plant Air Wash Pipeline Replacement Project**

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USERNAME: Patrick 6/25/2020 9:49 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\Sheets\G-01.dwg

DOCUMENT NUMBER: SWT-G-9328-64494



**LOCATION MAP**  
**SCALE: 1" = 5,000'**

# MAP AND CONSTRUCTION PLAN

## FOR

# SANTA TERESA

# WATER TREATMENT PLANT

### AIR WASH PIPELINE REPLACEMENT PROJECT

7011 GREYSTONE LANE  
SAN JOSE, CA 95120

SANTA CLARA VALLEY WATER DISTRICT



APPROVED BY:

*Emmanuel Aryee* 2020-06-01  
DATE

EMMANUEL ARYEE, P.E.  
CAPITAL ENGINEERING MANAGER  
PIPELINES PROJECT DELIVERY UNIT  
SANTA CLARA VALLEY WATER DISTRICT

*Heath McMahon* 2020-06-01  
DATE

HEATH MCMAHON, P.E.  
DEPUTY OPERATING OFFICER  
WATER UTILITY CAPITAL DIVISION  
SANTA CLARA VALLEY WATER DISTRICT

*Aaron Baker* 2020-06-01  
DATE

AARON BAKER, P.E.  
DEPUTY OPERATING OFFICER  
RAW WATER OPERATIONS DIVISION  
SANTA CLARA VALLEY WATER DISTRICT

ACCEPTED BY:

*Bhavani Yerrapoto* 2020-06-01  
DATE

BHAVANI YERRAPOTO  
DEPUTY OPERATING OFFICER  
TREATED WATER OPERATIONS & MAINTENANCE DIVISION  
SANTA CLARA VALLEY WATER DISTRICT



CONTRACT NUMBER	C-0662
PROJECT NUMBER	93764004
SHEET CODE:	G-01
SHEET NUMBER:	1 OF 26

USERNAME: Patrick 6/25/2020 9:49 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\SHEETS\G-02.dwg

DOCUMENT NUMBER: SWT-G-9328-64495



GENERAL NOTES

SITE MAP  
SCALE: 1" = 250'

- ALL EXISTING FACILITIES, STRUCTURES, TREES, FENCES, LANDSCAPING, ETC., DESIGNATED "EXIST" OR SHOWN EXISTING (DASHED OR SCREENED LINES) ARE TO REMAIN. EXISTING UTILITIES SHALL BE MAINTAINED OPERATIONAL AT ALL TIMES. ONLY THOSE SPECIFICALLY DESIGNATED FOR REMOVAL AS SHOWN ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER SHALL BE REMOVED.
- PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF EXISTING UNDERGROUND UTILITIES, THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS AND TAKE PROPER PRECAUTIONS TO AVOID ANY DAMAGE TO THEM. CALL UNDERGROUND SERVICE ALERT AT (800) 642-2444 AT LEAST 48 HOURS IN ADVANCE FOR LOCATION.
- THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE STATE WATER RESOURCES CONTROL BOARD FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
- WHERE THE WORK IS DEPENDENT UPON THE DIMENSIONS OF EXISTING FACILITIES, THE CONTRACTOR SHALL VERIFY THE DIMENSIONS IN THE FIELD PRIOR TO FABRICATION AND CONSTRUCTION.
- THE EXISTING UNDERGROUND UTILITIES AND PIPELINES ARE SHOWN AT APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS OF ALL EXISTING UTILITIES AND PIPELINES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DAMAGE WHICH IS CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE UNDERGROUND UTILITIES AND PIPELINE PRIOR TO COMMENCING WORK.
- CONTRACTOR SHALL PROTECT ALL EXISTING PIPES, DUCTS AND EQUIPMENT IN THE AREAS WHERE WORK IS TO BE PERFORMED. ANY DAMAGE SHALL BE REPAIRED OR REPLACED TO THE AGENCY'S SATISFACTION AT THE CONTRACTOR'S COST.
- ALL EXISTING SURFACES DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE.
- WHEN EQUIPMENT AND/OR PIPING IS TO BE DEMOLISHED BY THE CONTRACT, THE CONTRACTOR SHALL REMOVE ALL ACCESSORY ITEMS, ASSOCIATED BOLTS, SUPPORTS, AND CONCRETE PADS AS WELL, UNLESS OTHERWISE SHOWN. IN ADDITION, ALL PROTRUDING ITEMS SHALL BE GROUND SMOOTH AND PIPES PLUGGED (OR CAPPED). ALL SURFACES AFTER REMOVAL SHALL BE FINISHED TO MATCH SURROUNDING AREAS.
- ALL ELECTRICAL WORK AND MATERIALS SHALL CONFORM IN EVERY ASPECT TO THE LATEST SANTA CLARA COUNTY BUILDING CODE AND ALL APPLICABLE SUPPLEMENTS, EXCEPT WHERE EXCEEDED IN PLANS AND SPECIFICATIONS.
- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, COUNTY AND LOCAL LAWS, AND REGULATIONS WITH RESPECT TO SAFETY, WORKING HOURS, NOISE, AIR POLLUTION AND SANITARY CONDITIONS.
- CONTRACTOR SHALL CLOSE ALL ACCESS GATES IMMEDIATELY AFTER USE.
- CONTRACTOR SHALL BE AWARE THAT MINOR DIFFERENCES BETWEEN EXISTING AND REPLACEMENT PARTS AND COMPONENTS MAY OCCUR AND SHALL BE PREPARED TO MODIFY ASSEMBLY, AS NECESSARY, FOR FIT.
- CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR, AND DISPOSE OF, ALL REMOVED PARTS AND MATERIALS THAT ARE NOT TO BE REINSTALLED.

SHEET CODE	DESCRIPTION	SHEET NUMBER
GENERAL		
G-01	LOCATION MAP AND TITLE SHEET	1 OF 26
G-02	SITE MAP, DRAWING INDEX, AND GENERAL NOTES	2 OF 26
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DEMOLITION		
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D-02	DEMOLITION WEST FILTERS AND WEST FILTER GALLERY	8 OF 26
D-03	DEMOLITION EAST FILTERS AND EAST FILTER GALLERY	9 OF 26
CIVIL		
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M-11	MISCELLANEOUS DETAILS	21 OF 26
M-12	STANDARD PIPING DETAILS I	22 OF 26
M-13	STANDARD CORROSION CONTROL DETAILS	23 OF 26
REFERENCE		
R-01	REFERENCE I YARD PIPING PLAN 1 OF 3	24 OF 26
R-03	REFERENCE II YARD PIPING PLAN 2 OF 3	25 OF 26
R-03	REFERENCE III YARD PIPING PLAN 3 OF 3	26 OF 26

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE AS SHOWN	PROJECT NUMBER
					5/31/2019	<div><div>DESIGN A. SAINI DRAWN M. KOST CHECKED E. ARYEE</div><div><div>2020-06-01 PROJECT ENGINEER DATE</div></div></div>		<div>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</div> <div>SITE MAP, DRAWING INDEX, AND GENERAL NOTES</div>	<div>VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, USE SCALES ACCORDINGLY</div>	<div>SHEET CODE: G-02</div> <div>SHEET NUMBER: 2 OF 26</div>

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USERNAME: Patkey 6/25/2020 9:49 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\Sheets\G-03.dwg

2

DOCUMENT NUMBER: SWT-G-9328-64496

1

ABBREVIATIONS

AAM - AQUEOUS AMMONIA  
ABM - AIR BLOWN MORTAR  
ABS - ACRYLONITRILE-BUTADIENE-STYRENE  
AC - ASPHALT CONCRETE  
AB - ANCHOR BOLT OR AGGREGATE BASE  
AIR - AIR  
AISI - AMERICAN IRON & STEEL INSTITUTE  
ALIGN - ALIGNMENT  
ALUM - ALUMINUM  
AMP - AMPERES  
ANP/NP - ANIONIC POLYMER/NONIONIC POLYMER  
ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE  
APPROX - APPROXIMATELY  
ARV - AIR RELEASE VALVE  
ASA - AMERICAN SOCIETY FOR TESTING MATERIALS  
ASTM - AMERICAN STANDARD ASSOCIATION  
AW - FILTER AIRWASH, APPLIED WATER  
AWG - AMERICAN WIRE GAGE  
AWWA - AMERICAN WATER WORKS ASSOCIATION

BA - BACKWASH AIR  
BFP - BACKFLOW PREVENTER  
BM - BENCH MARK/BEAM  
BMP - BEST MANAGEMENT PRACTICES  
BOP - BOTTOM OF PIPE  
BOT - BOTTOM  
BR - BRASS  
BW - BACKWASH

C - CHANNEL  
CA - CLEAN AIR  
C & G - CURB AND GUTTER  
CL - CENTERLINE  
CB - CATCH BASIN (INLET)  
CC - CEMENT COAT  
CCTL - CORROSION CONTROL TEST LEADS  
CCP - CONCRETE CYLINDER PIPE  
CD - CHEMICAL DRAIN  
CDF - CONTROLLED DENSITY FILL  
CFM - CUBIC FEET PER MINUTE  
CHEM - CHEMICAL  
CI - CAST IRON  
CIP - CAST IRON PIPE, CAST IN PLACE  
CL - CLEARANCE, CHLORINE (LIQUID OR GAS), CENTERLINE  
CLR - CLEAR  
CLS - CHLORINE SOLUTION  
CMC - CEMENT MORTAR COAT  
CML - CEMENT MORTAR LINE  
CMP - CORRUGATED METAL PIPE  
CO - CLEAN OUT  
CONC - CONCRETE  
COND - CONDUIT  
CONT - CONTINUOUS  
COTG - CLEAN OUT TO GRADE  
CP - CEMENT PIPE, CATIONIC POLYMER  
CPLG - COUPLING  
CPVC - CHLORINATED POLYVINYL CHLORIDE  
CS - CAUSTIC SODA/CARBON STEEL  
CSP - CORRUGATED STEEL PIPE  
CTS - CALCIUM THIOSULFATE  
CU FT - CUBIC FEET  
CYL - CYLINDER  
CIPP - CAST-IN-PLACE PIPE  
CWW - CLARIFIED WASHWATER

D - DRAIN  
DC - DOUBLE CONTAINED  
DET - DETAIL  
DBL - DOUBLE  
DGV - DEGASSING VALVE  
DIA - DIAMETER  
DIP - DUCTILE IRON PIPE  
DW - DOMESTIC WATER  
DWG - DRAWING  
DWR - DEPARTMENT OF WATER RESOURCES

E - EAST  
EF - EACH FACE  
ELEC - ELECTRICAL  
EL, ELEV - ELEVATION  
EM - EMERGENCY  
EMBED - EMBEDMENT  
EP - EDGE OF PAVEMENT  
EQ - EQUILIZATION/EQUAL  
ESEW - EMERGENCY SHOWER/EYEWASH  
EW - EACH WAY  
EXIST - EXISTING  
EXP - EXPANSION

FC/LA - FERRIC CHLORIDE/LIQUID ALUM  
FCA - FLANGED COUPLING ADAPTER  
FCS - FERRIC CHLORDE SOLUTION  
FD - FLOOR DRAIN, CHEMICAL FEEDER  
FF - FINISH FLOOR  
FH - FIRE HYDRANT  
FI - FLOW INDICATOR  
FIT - FLOW INDICATOR WITH TRANSMITTER  
FLG - FLANGE  
FRP - FIBERGLASS REINFORCED PLASTIC  
FS - FLOOR SINK  
FSA - FLUOROSILICIC ACID  
FSL - FLOW SWITCH LEVEL  
FT - FEET  
FTW - FILTER TO WASTE  
FTWR - FILTER TO WASTE RETURN  
FW - FILTERED WATER

GA - GAGE  
GALV - GALVANIZED  
GB - GRADE BREAK

HG - HOT-DIPPED GALVANIZED  
HORIZ - HORIZONTAL  
HP - HORSEPOWER

ID - INSIDE DIAMETER  
IF - INSIDE FACE  
IL - INDUCTIVE LOOP  
IN - INCH  
INSUL - INSULATION  
INV - INVERT  
IP - IRON PIPE  
IPS - IRON PIPE SIZE  
IRR - IRRIGATION

JT - JOINT TRENCH, JOINT  
JB - JUNCTION BOX

KV - KILOVOLT

L - ANGLE, LENGTH  
LA - LIQUID ALUM  
LCP - LOCAL CONTROL PANEL  
LE - LEVEL SENSOR, LEFT END  
LF - LINEAL FEET  
LIT - LEVEL INDICATOR TRANSMITTER  
LOS - LOCK-OUT-STOP  
LOX - LIQUID OXYGEN  
LT - LEFT

MAINT - MAINTENANCE  
MAX - MAXIMUM  
MH - MANHOLE  
MECH - MECHANICAL  
MI - MIXER  
MIN - MINIMUM  
MON - MONUMENT  
MOV - MOTOR OPERATED VALVE  
MPT - MALE PIPE THREAD

N - NITROGEN, NORTH  
N/A - NOT APPLICABLE  
NAD - NORTH AMERICAN DATUM  
NC - NORMALLY CLOSED  
NE - NORTHEAST  
NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION  
NG - NATURAL GAS  
NGVD - NORTH AMERICAN VERTICAL DATUM  
NIC - NOT IN CONTRACT  
NO - NUMBER, NORMALLY OPEN  
NP - NONIONIC POLYMER  
NTS - NOT TO SCALE  
NW - NORTHWEST

OC - ON CENTER  
OCL - SODIUM HYPOCHLORITE  
OD - OUTSIDE DIAMETER  
OF - OUTSIDE FACE, OVERFLOW  
OH - OVERHEAD  
OP - ORTHOPHOSPHATE  
OPNG - OPENING  
OQA - OZONE QUENCHING AGENT  
OW - OZONATED WATER  
OZ - OZONE

PA - PLANT AIR  
PAC - POWDERED ACTIVATED CARBON  
PL - PROPERTY LINE, PLATE  
PCC - PORTLAND CEMENT CONCRETE  
PCCP - PRESTRESSED CONCRETE CYLINDER PIPE  
PE - PLAIN END, POLYETHYLENE  
PEA - ANIONIC POLYMER  
PEC - CATIONIC POLYMER  
PEN - NONIONIC POLYMER  
PG&E - PACIFIC GAS AND ELECTRIC  
PHA - PHOSPHORIC ACID  
PI - PRESSURE INDICATOR  
PLA/PL - PLATE  
PNL - PANEL  
PO - PLANT OVERFLOW  
PP - POTASSIUM PERMANGANATE  
PRESS - PRESSURE  
PROP - PROPOSED  
PSI - POUND PER SQUARE INCH  
PT - PRESSURE TRANSMITTER  
PVC - POLYVINYL CHLORIDE  
PVCH - POLYVINYL CHLORIDE HOSE  
PVMT - PAVEMENT  
PW - PLANT WATER (SEE NOTE 1), PUMPING WELL

RCB - REINFORCED CONCRETE BOX  
RECIRC - RECIRCULATION  
RCP - REINFORCED CONCRETE PIPE  
REBAR - REINFORCING BAR  
RED - REDUCER  
REINF - REINFORCED  
REQ'D - REQUIRED  
RM - ROOM  
RP - REDUCED PRESSURE  
RT - RIGHT  
RW - RAW WATER

S - SLOPE  
SA - SULFURIC ACID  
SAC - SAMPLE COAGULATED WATER  
SAF - SAMPLE FILTERED WATER  
SAM - SAMPLE  
SAR - SAMPLE RAW WATER  
SAS - SAMPLE SETTLED WATER  
SAT - SAMPLE TREATED WATER  
SC - SPARE CHEMICAL  
SCF - SAMPLE COMBINED FILTER WATER  
SCCP - STEEL CEMENT MORTAR COAT AND LINED PIPE  
SCHD - SCHEDULE  
SCVWD - SANTA CLARA VALLEY WATER DISTRICT  
SD - STORM DRAIN  
SE - SOUTHEAST  
SEC - SECTION  
SHT - SHEET  
SIM - SIMILAR  
SJMWS - SAN JOSE MUNICIPAL WATER  
SJWC - SAN JOSE WATER COMPANY  
SLG/SL - SLUDGE  
SLD - SLUDGE DECANT  
SPECS - SPECIFICATIONS  
SQ - SQUARE, SQUARE UNITS  
SS - SANITARY SEWER  
S/S - SIDE SHELL  
SSTL/SST - STAINLESS STEEL  
ST - STREET  
STA - STATION  
STD - STANDARD  
STL - STEEL  
SW - SOUTHWEST, SETTLED WATER  
SYM - SYMMETRICAL

T - TELEPHONE, TOP  
t - THICKNESS OF PLATE OR DIMENSION OF WELD  
T & B - TOP AND BOTTOM  
TC - TOP OF CURB  
TEL - TELEPHONE  
TG - TOP OF GRATE  
THD - THREADED  
THK - THICK  
TOB - TOP OF BANK  
TOP - TOP OF PIPE  
TRANS - TRANSFORMER  
TYP - TYPICAL  
TW - TREATED WATER

UG - UNDERGROUND  
UL - UNDERWRITERS LABORATORIES  
UON - UNLESS OTHERWISE NOTED  
USGS - UNITED STATES GEOLOGICAL SURVEY  
USC - UNIVERSITY OF SOUTHERN CALIFORNIA  
UW - UTILITY WATER (SEE NOTE 1)

V - VOLTAGE  
VAC - VOLTAGE ALTERNATING CURRENT  
VERT - VERTICAL  
VS - VARIABLE SPEED  
VT - VENT  
VTR - VENT TO ROOF  
VIF - VERIFY IN FIELD

W - WATER  
WW - WASH WATER  
WWF - WELDED WIRE FABRIC  
WWR - WASH WATER RETURN  
W/ - WITH  
W/O - WITHOUT  
WWROF - WASH WATER RECYCLE OVERFLOW


X-ING - CROSSING

& - AND  
@ - AT  
CL - CENTERLINE  
Ø - DIAMETER  
PL - PROPERTY LINE

NOTE:

1. PW AND UW USED INTERCHANGEABLY.

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES

DATE 5/31/2019	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT
DESIGN A. SAINI		PROJECT NAME AND SHEET DESCRIPTION: <b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>
DRAWN M. KOST		
CHECKED		
E. ARYEE		
PROJECT ENGINEER	DATE	

SCALE AS SHOWN	PROJECT NUMBER 93764004
VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF APPLICABLE, INCH ON SCALES ACCORDINGLY	SHEET CODE: G-03
ATTACHMENT 4	SHEET NUMBER: 3 OF 26

ABBREVIATIONS

4  
2  
1  
DOCUMENT NUMBER: SWT-G-9328-64497

SYMBOLS LEGEND

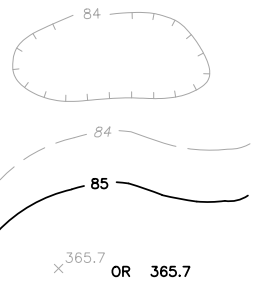
VALVE AND GATE SYMBOLS

	ISOLATION, TEST, VENT VALVING		NEEDLE VALVE
	GATE VALVE		BACK PRESSURE VALVE
	BALL VALVE		PRESSURE REDUCING OR REGULATING VALVE
	BUTTERFLY VALVE		FLOAT VALVE
	PLUG VALVE		PRESSURE RELIEF VALVE
	BALL CHECK VALVE		AIR RELIEF VALVE
	DIAPHRAGM VALVE		FOOT VALVE WITH STRAINER
	FIRE DEPT CONNECTION		AIR RELEASE VALVE
	2-WAY SOLENOID VALVE		BACKFLOW PREVENTER REDUCED PRESSURE PRINCIPLE TYPE
	FIRE HYDRANT		OUTSIDE STEM AND YOKE (OS&Y) GATE VALVE
	MOTOR OPERATOR MOTOR OPERATOR INCLUDES INTEGRAL MOTOR STARTER (CONTROLLER) UNLESS SHOWN OTHERWISE		

SURVEY SYMBOL

	HORIZONTAL CONTROL
	VERTICAL CONTROL
	HORIZONTAL VERTICAL CONTROL
	TEMPORARY BENCH MARK
	N 264700 E 1610600 NORTHING AND EASTING COORDINATES

SYMBOL



FEATURE

	DEPRESSION CONTOUR
	EXISTING CONTOUR AND ELEVATION
	NEW CONTOUR AND ELEVATION
	SPOT ELEVATION

PIPE SYMBOLS

	EXISTING PIPING		STATIC MIXER
	HOSE BIB		PUMP
	Y-STRAINER W/BLOWOFF		GAS OR CHEMICAL DIFFUSER
	Y-STRAINER		AIR VENT
	ECCENTRIC REDUCER/INCREASER		CHEMICAL DIFFUSER
	CONCENTRIC REDUCER/INCREASER		EMERGENCY SHOWER & EYEWASH
	FLEXIBLE HOSE WITH CONNECTORS		DOUBLE CONTAINED PIPE
	QUICK CONNECTION COUPLING		INSULATED PIPE
	THREADED CONNECTION W/CAP		FLEXIBLE (MECHANICAL) COUPLING
	BLIND FLANGE		FLANGED PIPING
	UNION		
	CONTINUED PIPE		
	PIPING OUT OF PAGE		
	PIPING INTO PAGE		
	FLOOR DRAIN		
	FLANGED		
	CONCRETE THRUST BLOCK		
	FITTING (SEE SPEC FOR ENDS)		
	EXPANSION JOINT		

LINE TYPE LEGEND

	AIR WASH LINE
	ELECTRICAL LINE
	ELECTRICAL LIGHTING
	IRRIGATION LINE
	STORM DRAIN LINE
	SANITARY SEWER LINE
	TELEPHONE LINE
	WATER LINE
	K-RAIL BARRICADE
	CHAIN LINK FENCE LINE
	CUT OR FILL SLOPE
	CENTER LINE
	CENTER LINE
	GROUND
	MATCH LINE

NOTE: NEW OR MODIFIED EXISTING LINETYPE SHOWS AS DARKER LINE WORK.

SYMBOL

	SAND
	AGGREGATE BASE, CLASS 2 PERMEABLE
	STRUCTURAL FILL/BACKFILL
	NON-STRUCTURAL FILL/BACKFILL
	UNDISTURBED EARTH
	FIBERGLASS REINFORCED PLASTIC COVER
	GRASS
	ALUMINUM COVER

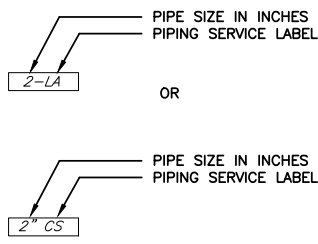
FEATURE

	GRATING SPAN DIRECTION WHERE APPLICABLE
	HEAVY DUTY CHECKERED STEEL PLATE
	CONCRETE (PAVEMENT)
	PAVEMENT OR SIDEWALK (SECTION)
	ASPHALT CONCRETE PAVEMENT (PLAN)
	CONCRETE GRATING
	ASPHALT SLURRY SEAL
	WOOD BARK

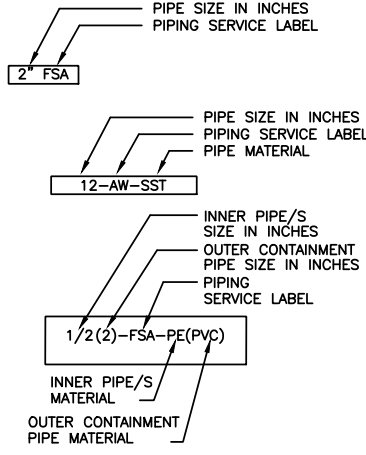
DEMOLITION OF EXISTING IMPROVEMENT

DETAIL AND SECTION DESIGNATION

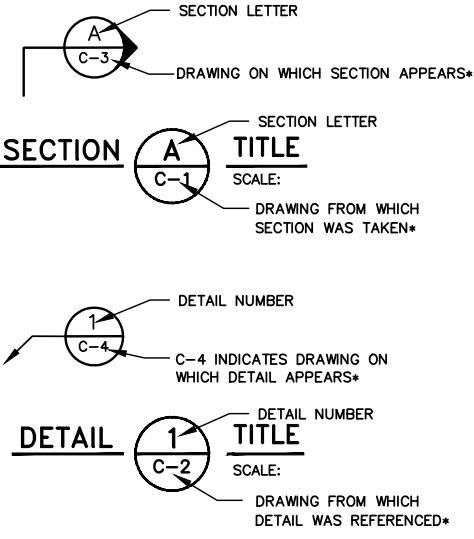
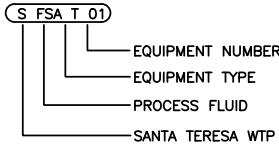
EXISTING PIPE CODE



PIPE CODE



EQUIPMENT AND PIPING DESIGNATION



\* IF SECTION OR DETAIL APPEARS ON THE SAME DRAWING AS THE CALLOUT, THE DRAWING REFERENCE IS REPLACED WITH A DASH (-)

- NOTES:
- TYP IN THE BOTTOM OR END OF A CALLOUT INDICATES A TYPICAL DETAIL. REFER TO ALL TYPICAL DETAIL SHEETS IN DIFFERENT DISCIPLINES. TYPICAL DETAILS MAY NOT BE SHOWN IN NUMERICAL ORDER, REVIEW ALL SHEETS. TYPICAL DETAILS SHALL BE USED FOR ALL PERMANENT WORK, EVEN THOUGH THEY MAY NOT BE CALLED OUT AT EVERY LOCATION WHERE THEY APPLY.
  - ADDITIONAL SYMBOL DEFINITIONS AND NOTES SHALL BE SHOWN ON DISCIPLINE SHEETS.

DATE  
5/31/2019  
DESIGN  
A. SAINI  
DRAWN  
M. KOST  
CHECKED  
E. ARYEE

ENGINEERING CERTIFICATION  
  
PROJECT ENGINEER DATE 2020-06-01

SANTA CLARA VALLEY WATER DISTRICT

PROJECT NAME AND SHEET DESCRIPTION:  
**STWTP AIR WASH PIPELINE REPLACEMENT PROJECT**

SCALE  
AS SHOWN  
VERIFY SCALES  
0 1"  
BAR IS ONE INCH ON ORIGINAL DRAWING  
IF A 1/8" SHEET IS USED  
SCALE ACCORDINGLY

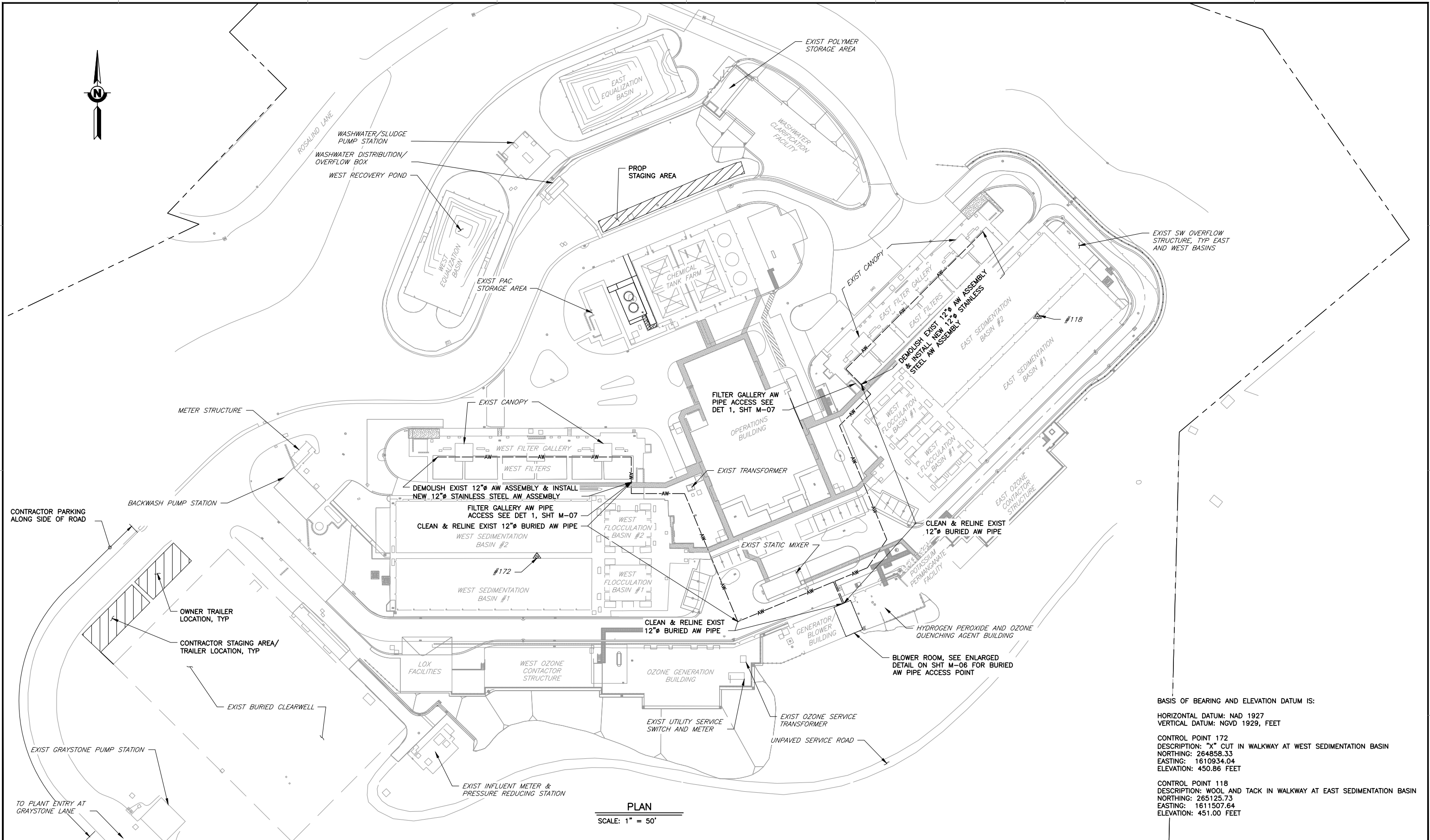
PROJECT NUMBER  
**93764004**  
SHEET CODE:  
**G-04**  
SHEET NUMBER:  
4 OF 26

LEGENDS AND SYMBOLS



USERNAME: Patkey 6/25/2020 9:49 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\SHEETS\G-05.dwg

DOCUMENT NUMBER: SWT-G-9328-64498



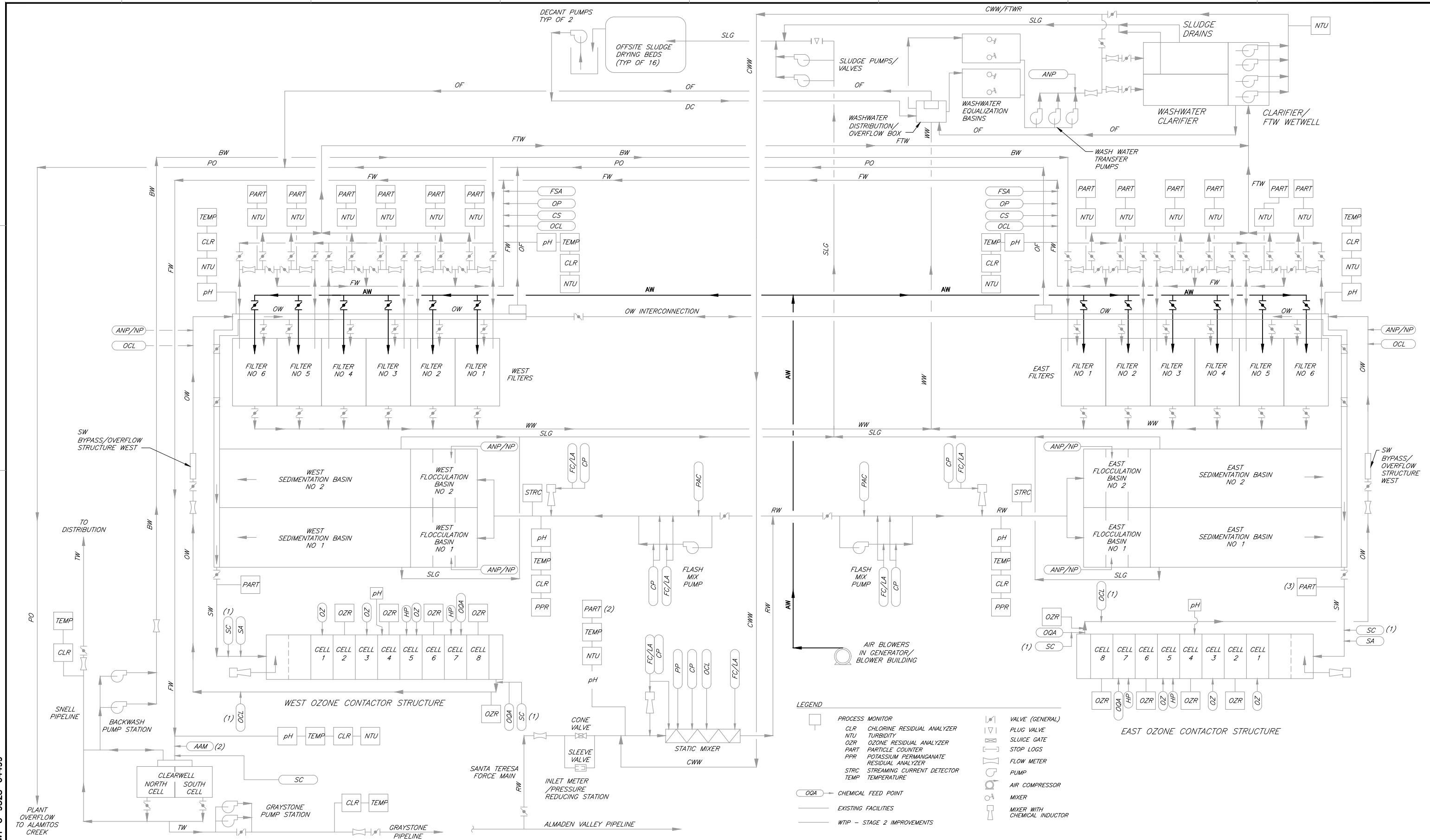
BASIS OF BEARING AND ELEVATION DATUM IS:

HORIZONTAL DATUM: NAD 1927  
VERTICAL DATUM: NGVD 1929, FEET

CONTROL POINT 172  
DESCRIPTION: "X" CUT IN WALKWAY AT WEST SEDIMENTATION BASIN  
NORTHING: 264858.33  
EASTING: 1610934.04  
ELEVATION: 450.86 FEET

CONTROL POINT 118  
DESCRIPTION: WOOL AND TACK IN WALKWAY AT EAST SEDIMENTATION BASIN  
NORTHING: 265125.73  
EASTING: 1611507.64  
ELEVATION: 451.00 FEET

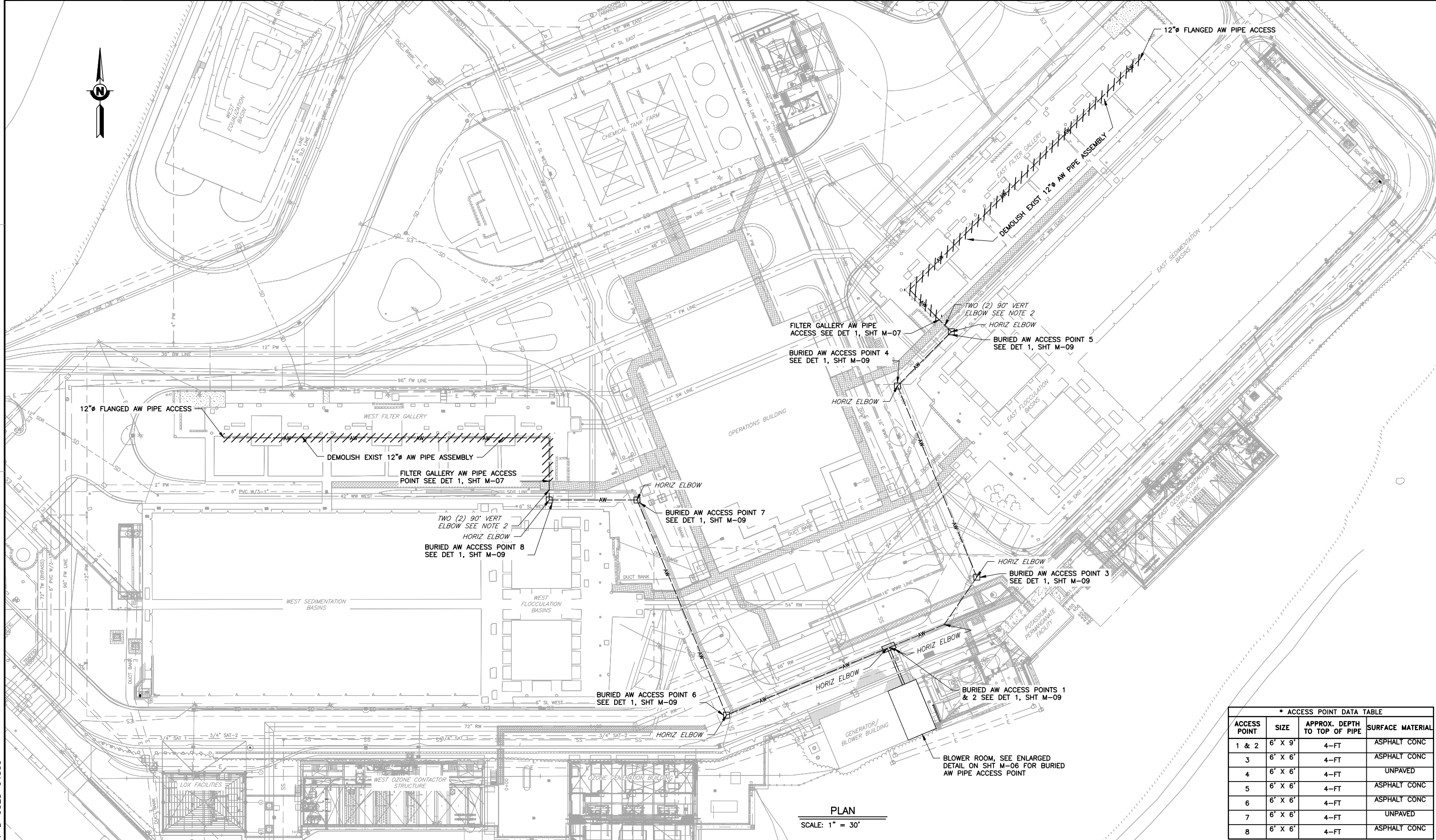
REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
					5/31/2019	<div>REGISTERED PROFESSIONAL ENGINEER EMMANUEL ARYEE No. 59383 CIVIL STATE OF CALIFORNIA 2020-06-01 PROJECT ENGINEER DATE</div>		<b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>	AS SHOWN	<b>93764004</b>
									VERIFY SCALES	SHEET CODE:
									0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, USE SCALES ACCORDINGLY	<b>G-05</b>
								<b>GENERAL SITE PLAN</b>		SHEET NUMBER:
										5 OF 26



REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
					5/31/2019	<div>REGISTERED PROFESSIONAL ENGINEER EMMANUEL ARTE No. 59383 CIVIL STATE OF CALIFORNIA 2020-06-01 PROJECT ENGINEER DATE</div>		<b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>	AS SHOWN	<b>93764004</b>
									VERIFY SCALES	SHEET CODE:
									0 1"	<b>G-06</b>
									BAR IS ONE INCH ON ORIGINAL DRAWING IF APPLICABLE, INCH ON SCALES ACCORDINGLY	SHEET NUMBER:
										6 OF 26

USERNAME: Patrick 6/25/2020 9:50 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\Sheets\D-01.dwg

DOCUMENT NUMBER: SWT-D-9328-64500

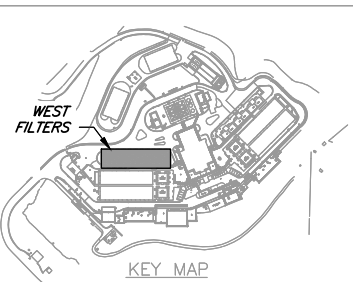
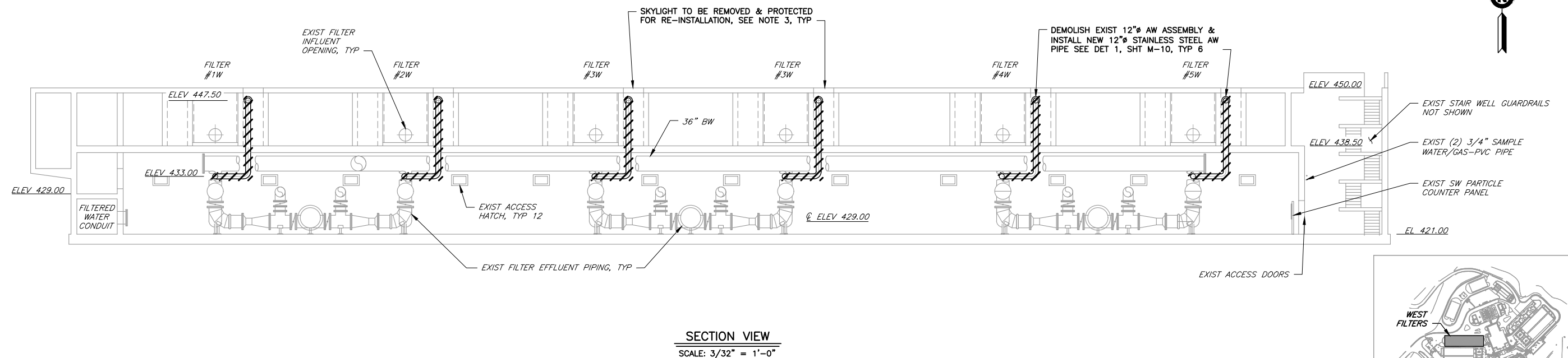
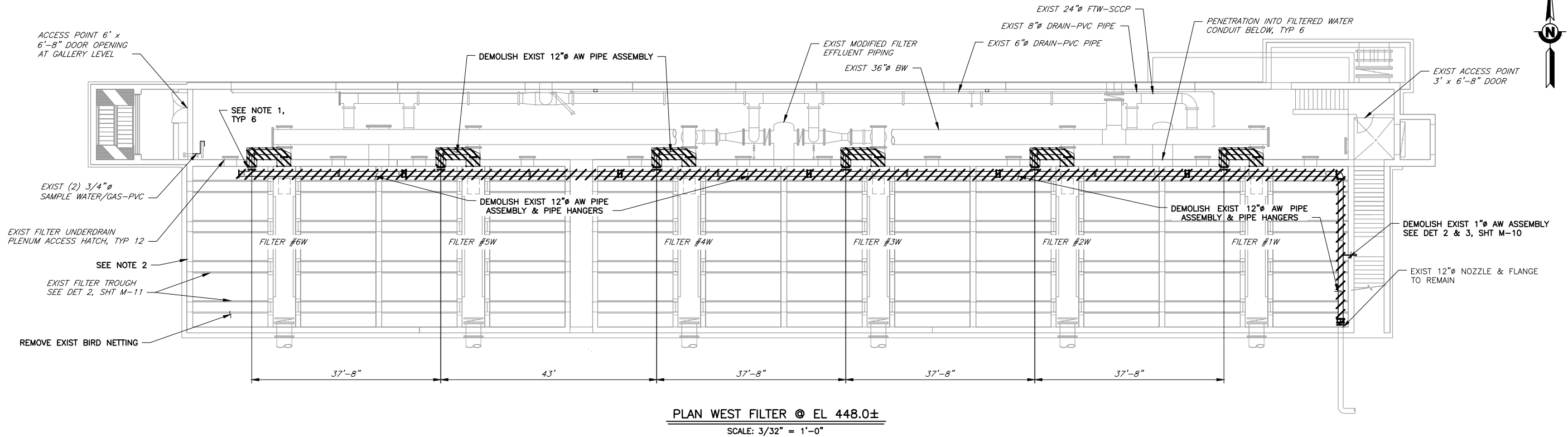


* ACCESS POINT DATA TABLE			
ACCESS POINT	SIZE	APPROX. DEPTH TO TOP OF PIPE	SURFACE MATERIAL
1 & 2	6' X 9'	4-FT	ASPHALT CONC
3	6' X 6'	4-FT	ASPHALT CONC
4	6' X 6'	4-FT	UNPAVED
5	6' X 6'	4-FT	ASPHALT CONC
6	6' X 6'	4-FT	ASPHALT CONC
7	6' X 6'	4-FT	UNPAVED
8	6' X 6'	4-FT	ASPHALT CONC

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
				1. FOR ADDITIONAL AIR WASH PIPING DETAILS SEE SHEET R-01 THRU R-03. 2. VERTICAL ELEVATION CHANGE APPROX. 4.2-FT, FROM HORIZONTAL ELBOW. 3. ALL UTILITIES ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR.  * EXPLORATORY POTHOLING TO OCCUR AT ALL PIPE ACCESS POINTS PRIOR TO EXCAVATION, SEE R-02.	5/31/2019	DESIGN O. NGA/A. SAINI DRAWN O. NGA CHECKED E. ARYEE		<b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>	AS SHOWN VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF APPLICABLE, INCH ON THIS SHEET SHALL BE SCALES ACCORDINGLY	93764004
								DEMOLITION SITE PLAN	SHEET CODE: <b>D-01</b>	
								Attachment 4	SHEET NUMBER: 7 OF 26	

USERNAME: Patkey 6/25/2020 9:50 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\Sheets\0-02.dwg

DOCUMENT NUMBER: SWT-D-9328-64501

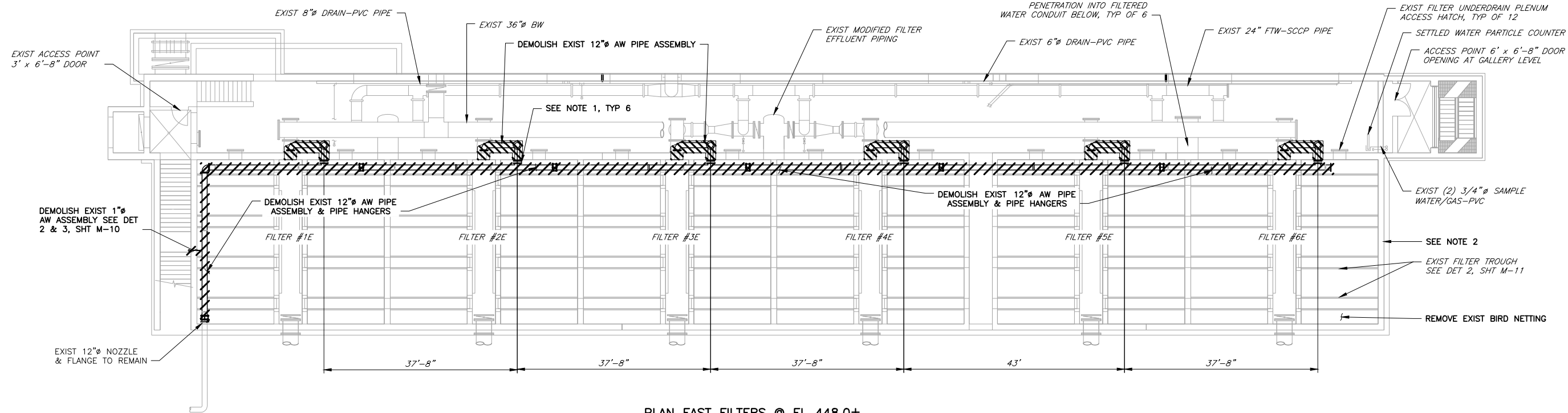


REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
				1. REMOVE & REINSTALL ALL EXIST 12" Ø AIR WASH BFV. 2. EXISTING PICKET RAILING AROUND FILTER GALLERY NOT SHOWN FOR CLARITY. 3. REINSTALLATION OF EXIST SKYLIGHT SHALL BE SEALED WITH SIKAFLEX-1A OR EQUIVALENT.	5/31/2019	<div>REGISTERED PROFESSIONAL ENGINEER EMMANUEL ARYEE No. 59383 CIVIL STATE OF CALIFORNIA 2020-06-01 PROJECT ENGINEER DATE</div>		<b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>  <b>DEMOLITION WEST FILTERS AND FILTER GALLERY</b>	AS SHOWN VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF APOORLY INCH ON THIS SHEET SCALES ACCORDINGLY	93764004 SHEET CODE: <b>D-02</b> SHEET NUMBER: 8 OF 26

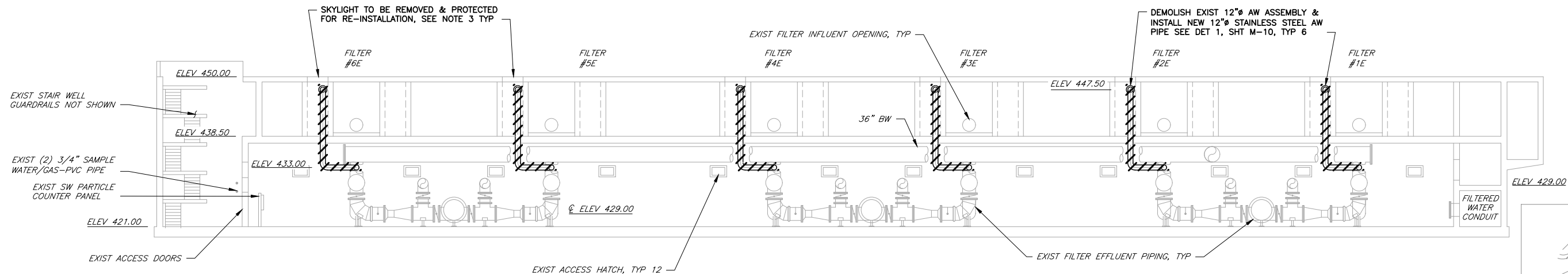


USERNAME: Patkey 6/25/2020 9:50 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\SHEETS\D-03.dwg

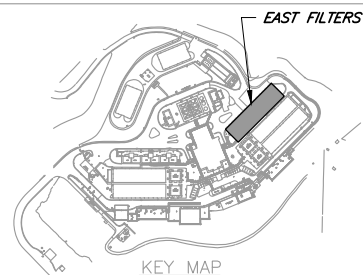
DOCUMENT NUMBER: SWT-D-9328-64502



PLAN EAST FILTERS @ EL 448.0±  
SCALE: 3/32" = 1'-0"



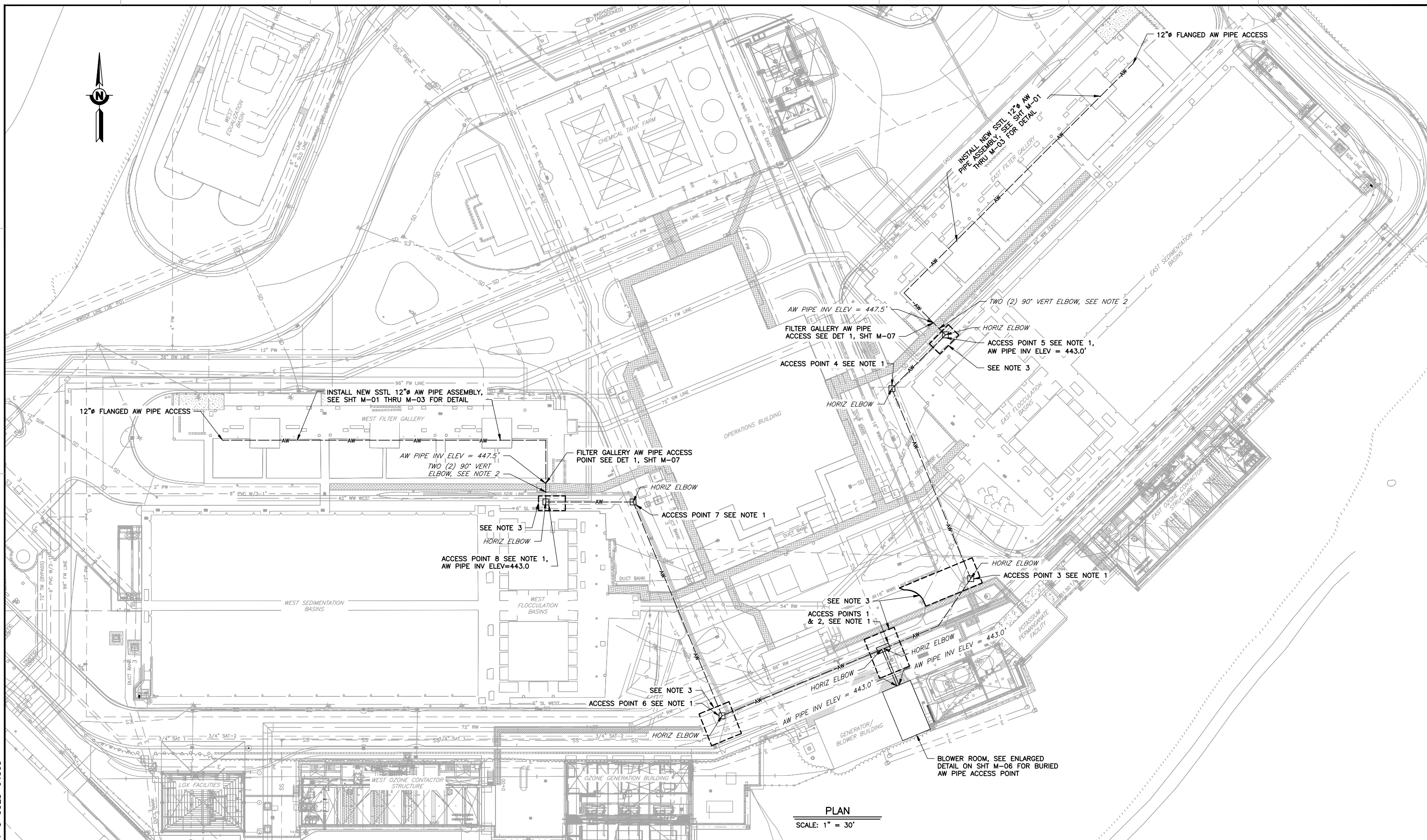
SECTION VIEW  
SCALE: 3/32" = 1'-0"



REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
				1. REMOVE AND REINSTALL ALL EXIST 12"Ø AIR WASH BFV. 2. EXISTING PICKET RAILING AROUND FILTER GALLERY NOT SHOWN FOR CLARITY. 3. REINSTALLATION OF EXIST SKYLIGHT SHALL BE SEALED WITH SIKAFLEX-1A OR EQUIVALENT.	5/31/2019	<div>REGISTERED PROFESSIONAL ENGINEER EMMANUEL ARYEE No. 59383 CIVIL STATE OF CALIFORNIA 2020-06-01 PROJECT ENGINEER DATE</div>		<b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>  DEMOLITION EAST FILTERS AND FILTER GALLERY	AS SHOWN VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, USE SCALES ACCORDINGLY	93764004 SHEET CODE: <b>D-03</b> SHEET NUMBER: 9 OF 26

USERNAME: Patrick 6/25/2020 9:50 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\SHEETS\C-01.dwg

DOCUMENT NUMBER: SWT-C-9328-64503



REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES		DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:		SCALE	PROJECT NUMBER
				1. EXCAVATE AND INSTALL NEW FLANGED ELBOW SEE DET 1 & 2, SHT M-08. 2. VERTICAL ELEVATION CHANGE APPROX 4.2 FT FROM HORIZONTAL ELBOW. 3. PROP SLURRY SEAL EXTENTS.		5/31/2019	<div>REGISTERED PROFESSIONAL ENGINEER EMMANUEL ARYE No. 59383 CIVIL STATE OF CALIFORNIA 2020-06-01 PROJECT ENGINEER DATE</div>		<b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>		AS SHOWN	93764004
						DESIGN					VERIFY SCALES	SHEET CODE:
						DRAWN					0 1"	C-01
						CHECKED					BAR IS ONE INCH ON ORIGINAL DRAWING	SHEET NUMBER:
						E. ARYEE					SCALE ACCORDINGLY	10 OF 26

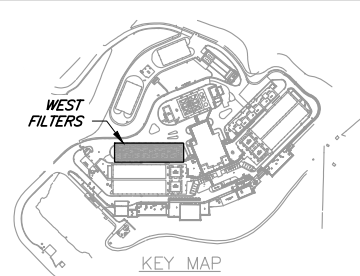
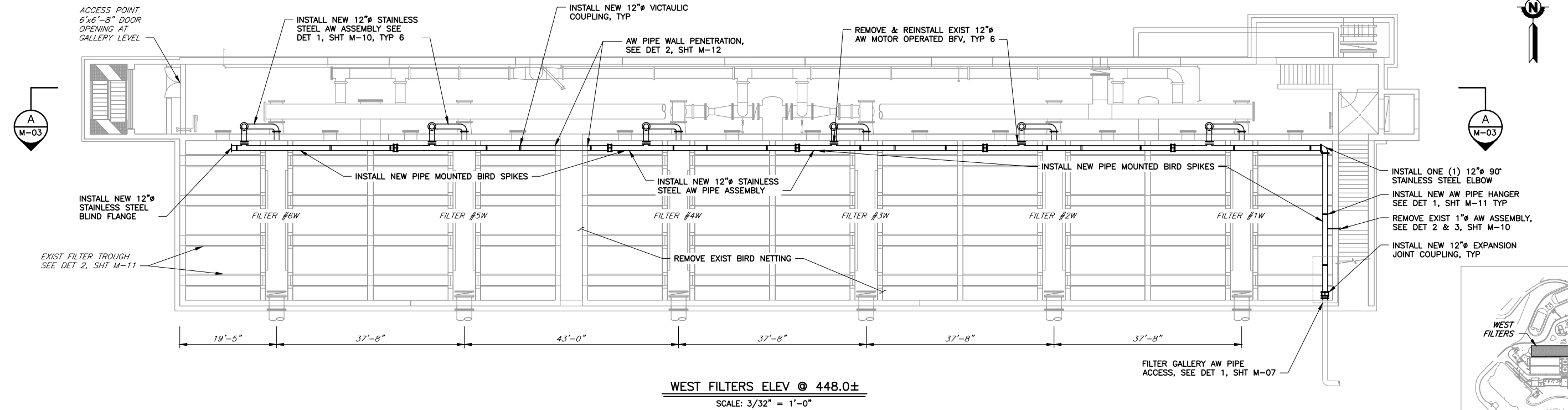
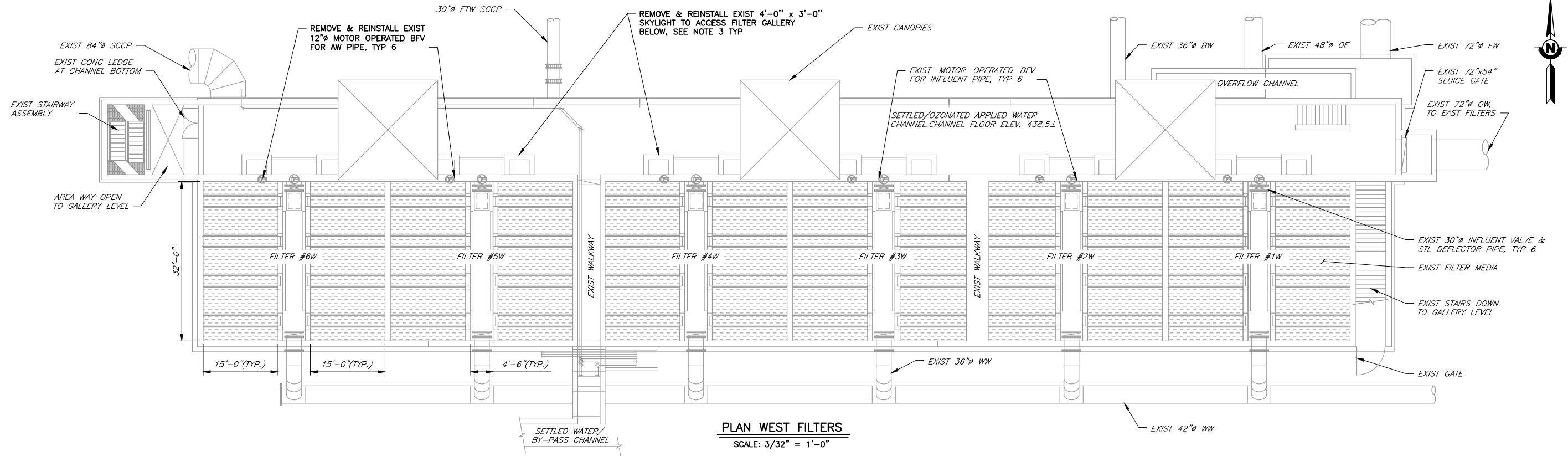
SITE PLAN

Attachment 4

Page 374 of 390

USERNAME: Patkey 6/25/2020 9:50 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\SHEETS\M-01.dwg

DOCUMENT NUMBER: SWT-M-9328-64504



REV	DESCRIPTION	DATE	APPR

- REFERENCE INFORMATION AND NOTES
- AW PIPE AND ACCESSORIES INDICATED ON THIS SHEET ARE APPROXIMATE LOCATION. FIELD VERIFY PRIOR TO INSTALLATION.
  - CONCRETE OVERHANGS NOT SHOWN FOR CLARITY.
  - REINSTALLATION OF EXIST SKYLIGHT SHALL BE SEALED WITH SIKAFLEX-1A OR EQUIVALENT.

DATE  
5/31/2019  
DESIGN  
O. NGA/A. SAINI  
DRAWN  
M. KOST  
CHECKED  
E. ARYEE

ENGINEERING CERTIFICATION  
  
PROJECT ENGINEER DATE

SANTA CLARA VALLEY WATER DISTRICT

PROJECT NAME AND SHEET DESCRIPTION:  
**STWTP AIR WASH PIPELINE REPLACEMENT PROJECT**  
**WEST FILTERS AND FILTER GALLERY**

SCALE  
AS SHOWN  
VERIFY SCALES  
0 1"  
BAR IS ONE INCH ON ORIGINAL DRAWING  
IF APPLICABLE, INDICATE SCALE ACCORDINGLY

PROJECT NUMBER  
**93764004**  
SHEET CODE:  
**M-01**  
SHEET NUMBER:  
11 OF 26

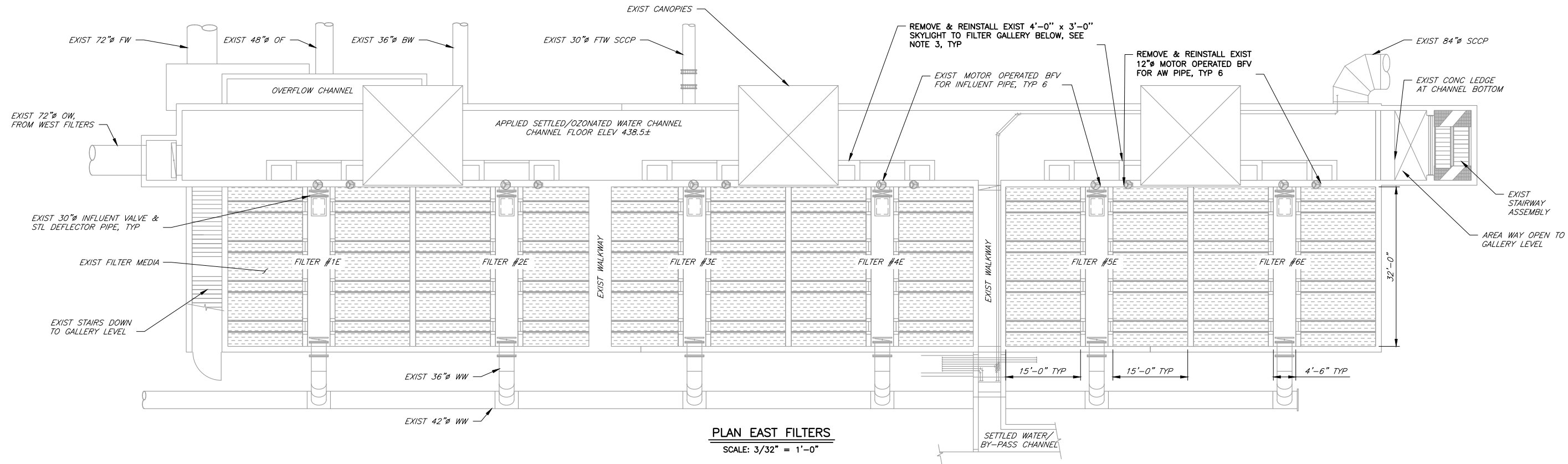
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USERNAME: Patkey 6/25/2020 9:51 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\Sheets\M-02.dwg

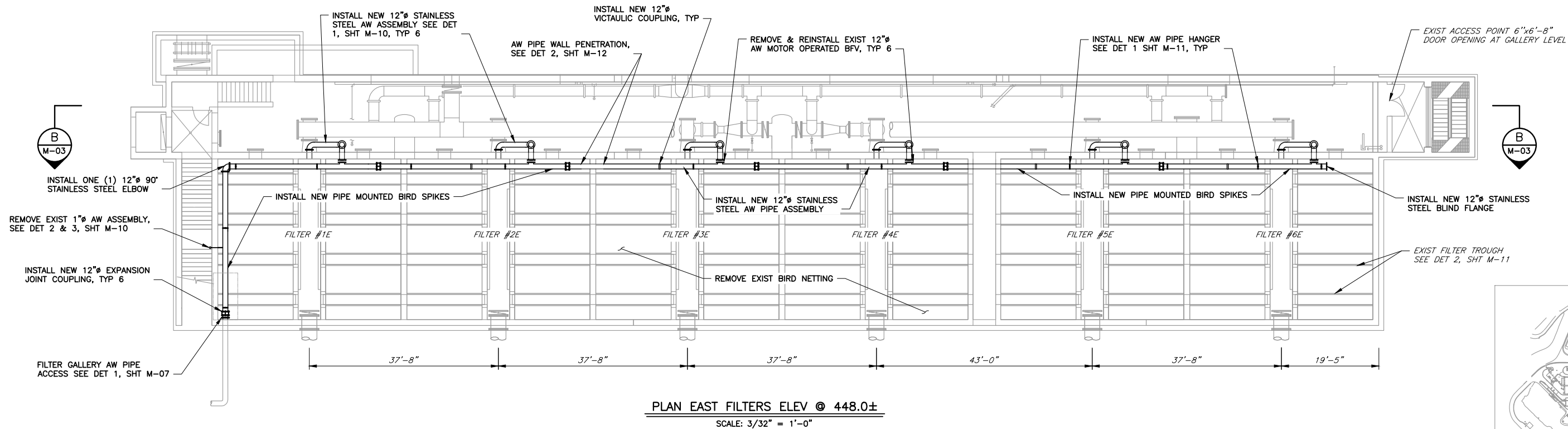
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DOCUMENT NUMBER: SWT-M-9328-64505

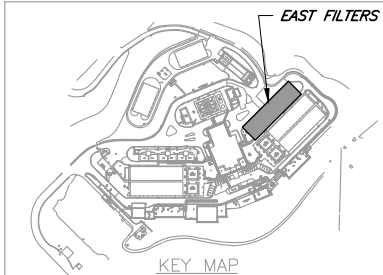
1



PLAN EAST FILTERS  
SCALE: 3/32" = 1'-0"



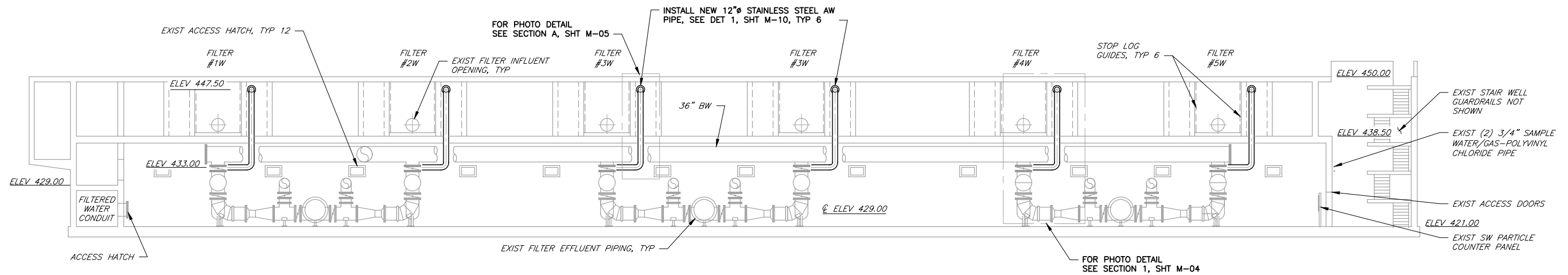
PLAN EAST FILTERS ELEV @ 448.0±  
SCALE: 3/32" = 1'-0"



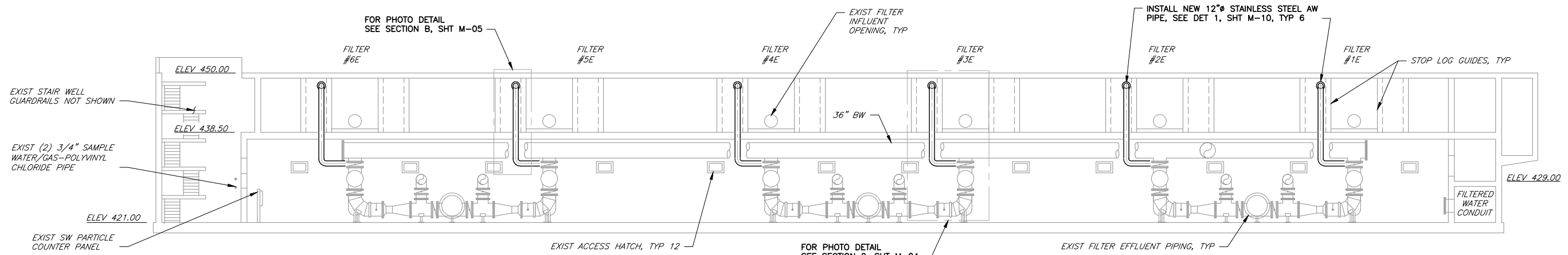
REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
				1. AW PIPE AND ACCESSORIES INDICATED ON THIS SHEET ARE APPROXIMATE LOCATION. FIELD VERIFY PRIOR TO INSTALLATION. 2. CONCRETE OVERHANGS NOT SHOWN FOR CLARITY. 3. REINSTALLATION OF EXIST SKYLIGHT SHALL BE SEALED WITH SIKAFLEX-1A OR EQUIVALENT.	5/31/2019	<div>ENGINEER EMMANUEL ARTEE No. 59383 CIVIL STATE OF CALIFORNIA 2020-06-01 PROJECT ENGINEER DATE</div>		<b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>  EAST FILTERS AND FILTER GALLERY	AS SHOWN VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF ANY LINE INCH ON THIS SHEET SCALES ACCORDINGLY	93764004 SHEET CODE: <b>M-02</b> SHEET NUMBER: 12 OF 26

USERNAME: Patkey 6/25/2020 9:51 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\SHEETS\M-03.dwg

DOCUMENT NUMBER: SWT-M-9328-64506



**SECTION A**  
**WEST FILTER GALLERY**  
M-01  
SCALE: 3/32" = 1'-0"



**SECTION B**  
**EAST FILTER GALLERY**  
M-02  
SCALE: 3/32" = 1'-0"

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
				1. AW PIPE AND ACCESSORIES INDICATED ON THIS SHEET ARE APPROXIMATE LOCATION. FIELD VERIFY PRIOR TO INSTALLATION.	5/31/2019	<div>EMMANUEL ARYEE No. 59383 CIVIL STATE OF CALIFORNIA</div>		<b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>	AS SHOWN	<b>93764004</b>
								<b>WEST AND EAST FILTER GALLERY SECTIONS</b>	VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING 1/4" = 1'-0" ON THIS SHEET ONLY SCALE ACCORDINGLY	<b>SHEET CODE: M-03</b>
										<b>SHEET NUMBER: 13 OF 26</b>



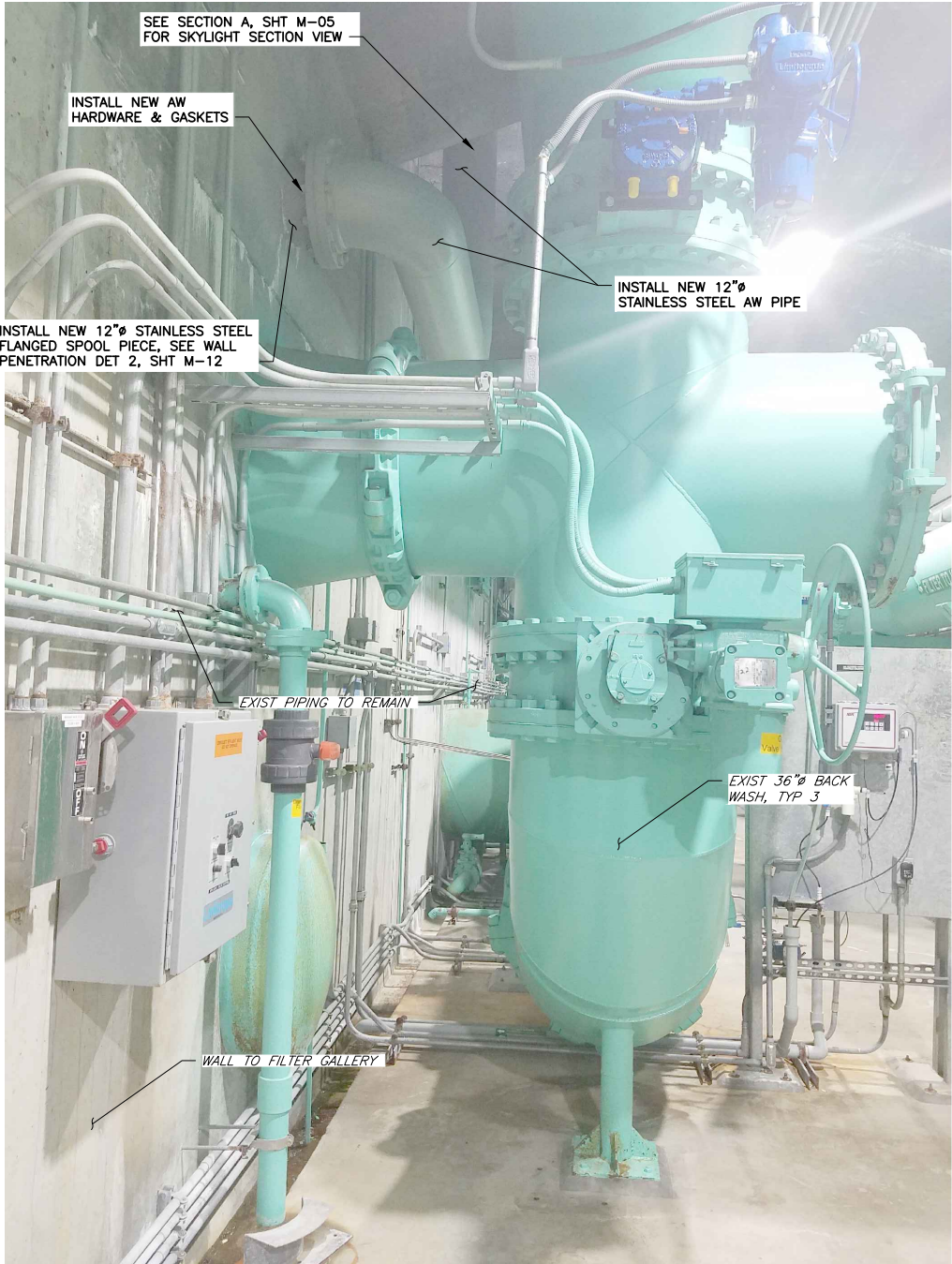
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USERNAME: Patkey 6/25/2020 9:51 AM  
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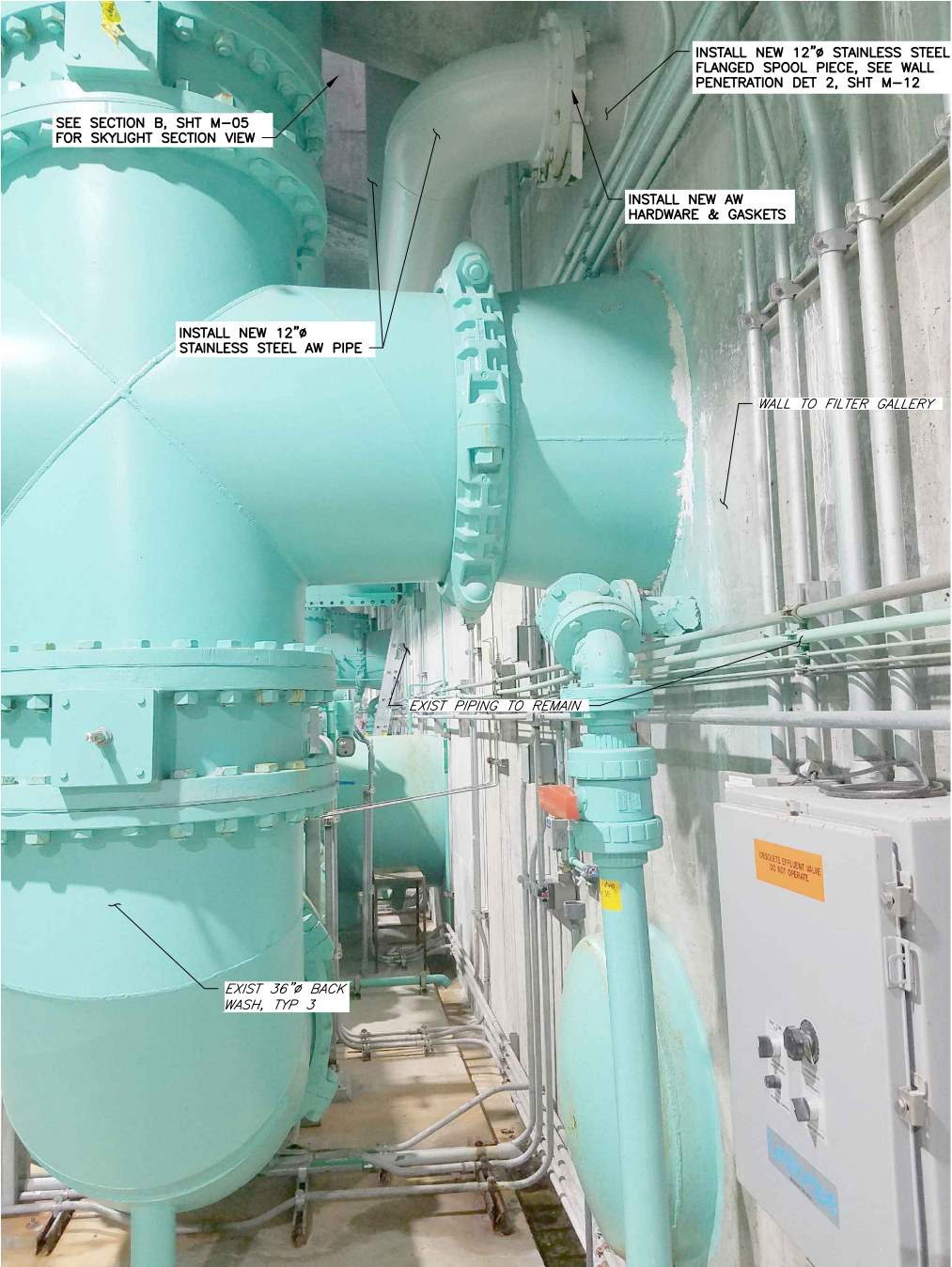
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DOCUMENT NUMBER: SWT-M-9328-64507

1



SECTION 1 WEST FILTER GALLERY SECTION  
M-03 SCALE: NTS



SECTION 2 EAST FILTER GALLERY SECTION  
M-03 SCALE: NTS

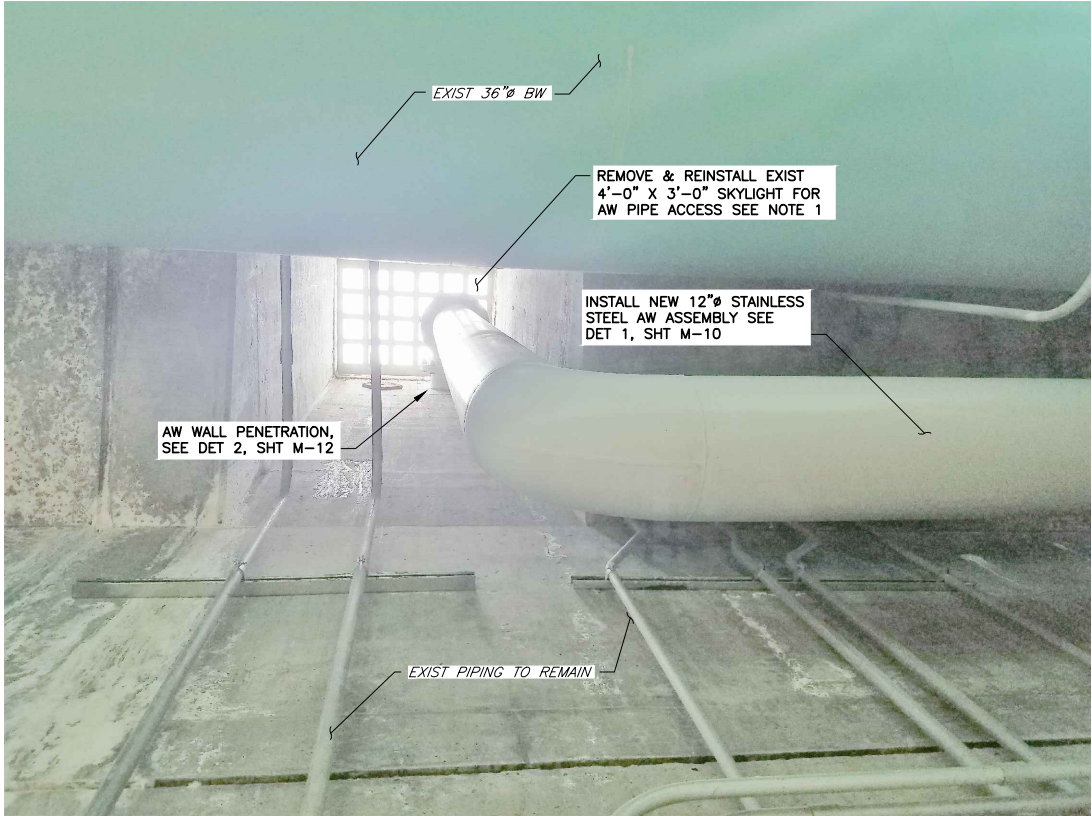
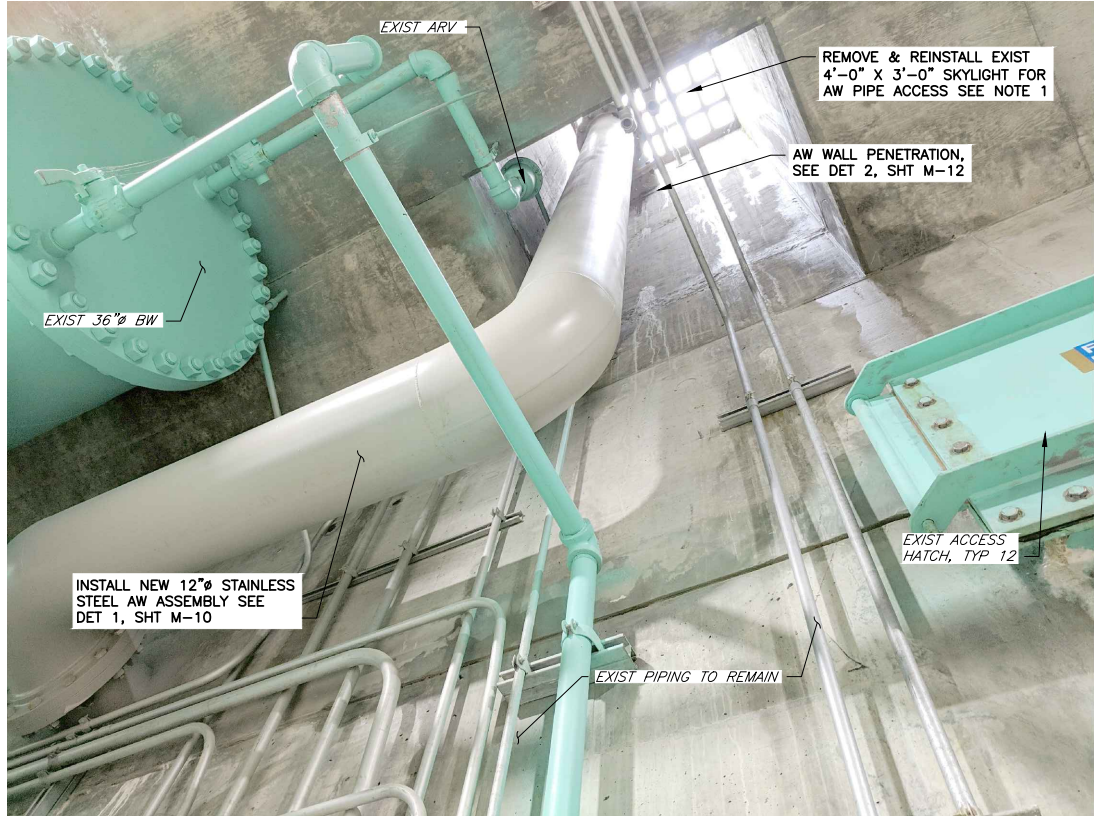
REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
					5/31/2019	<div>REGISTERED PROFESSIONAL ENGINEER EMMANUEL ARYEE No. 59383 CIVIL STATE OF CALIFORNIA</div>		STWTP AIR WASH PIPELINE REPLACEMENT PROJECT	AS SHOWN	93764004
					O. NGA			WEST AND EAST FILTER GALLERY SECTION PHOTOS I	VERIFY SCALES	SHEET CODE:
					DRAWN				0 1"	M-04
					O. NGA				BAR IS ONE INCH ON ORIGINAL DRAWING	SHEET NUMBER:
					CHECKED				1/8" SHOWN ON THIS SHEET	14 OF 26
					E. ARYEE	2020-06-01			SCALE: ACCORDINGLY	
					PROJECT ENGINEER	DATE				



4

USERNAME: Patkey 6/25/2020 9:51 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\Sheets\M-05.dwg

2



1

DOCUMENT NUMBER: SWT-M-9328-64508

SECTION 

A

 WEST FILTER GALLERY SECTION

M-03

M-04

SCALE: NTS

SECTION 

B

 EAST FILTER GALLERY SECTION

M-03

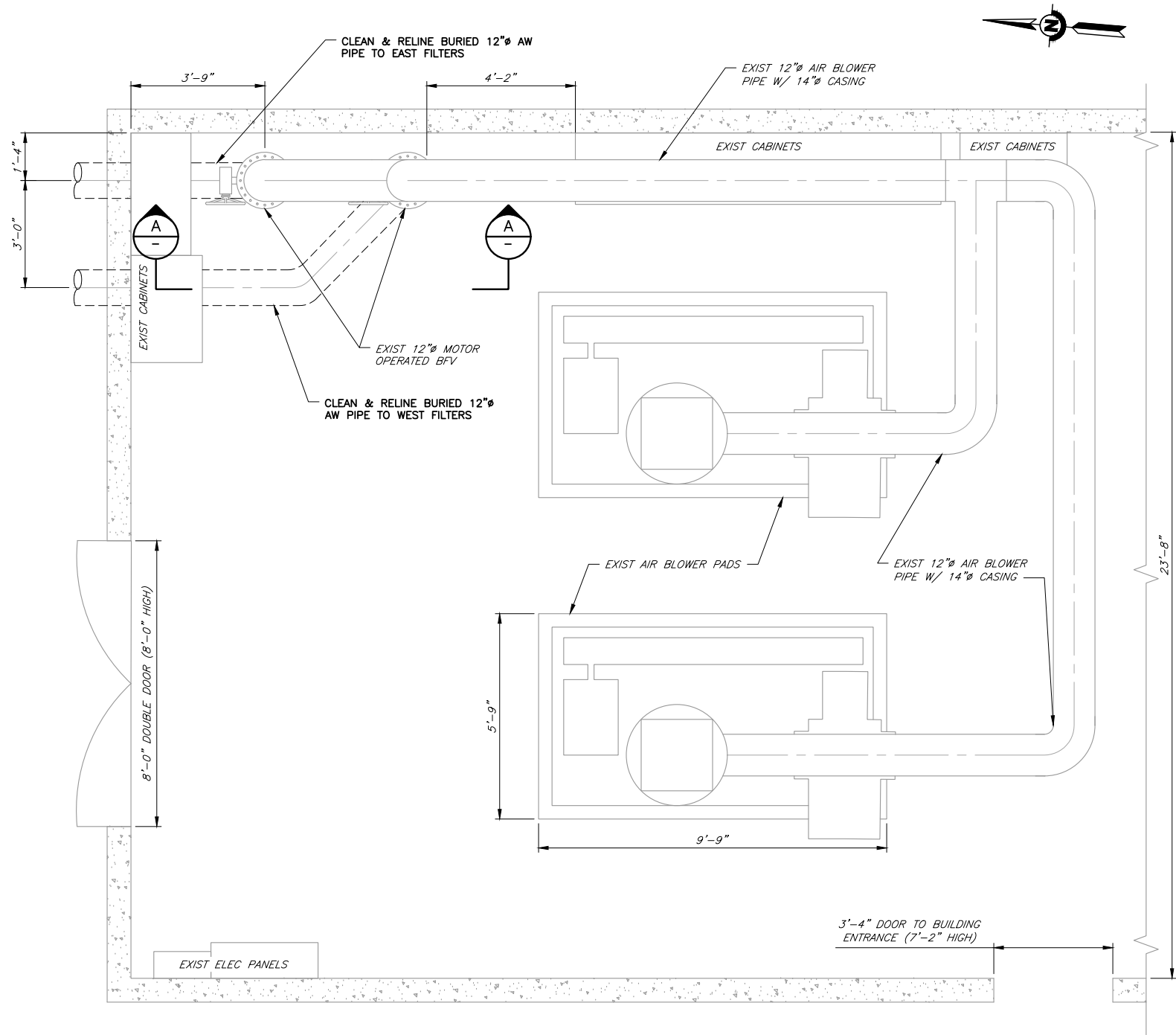
M-04

SCALE: NTS

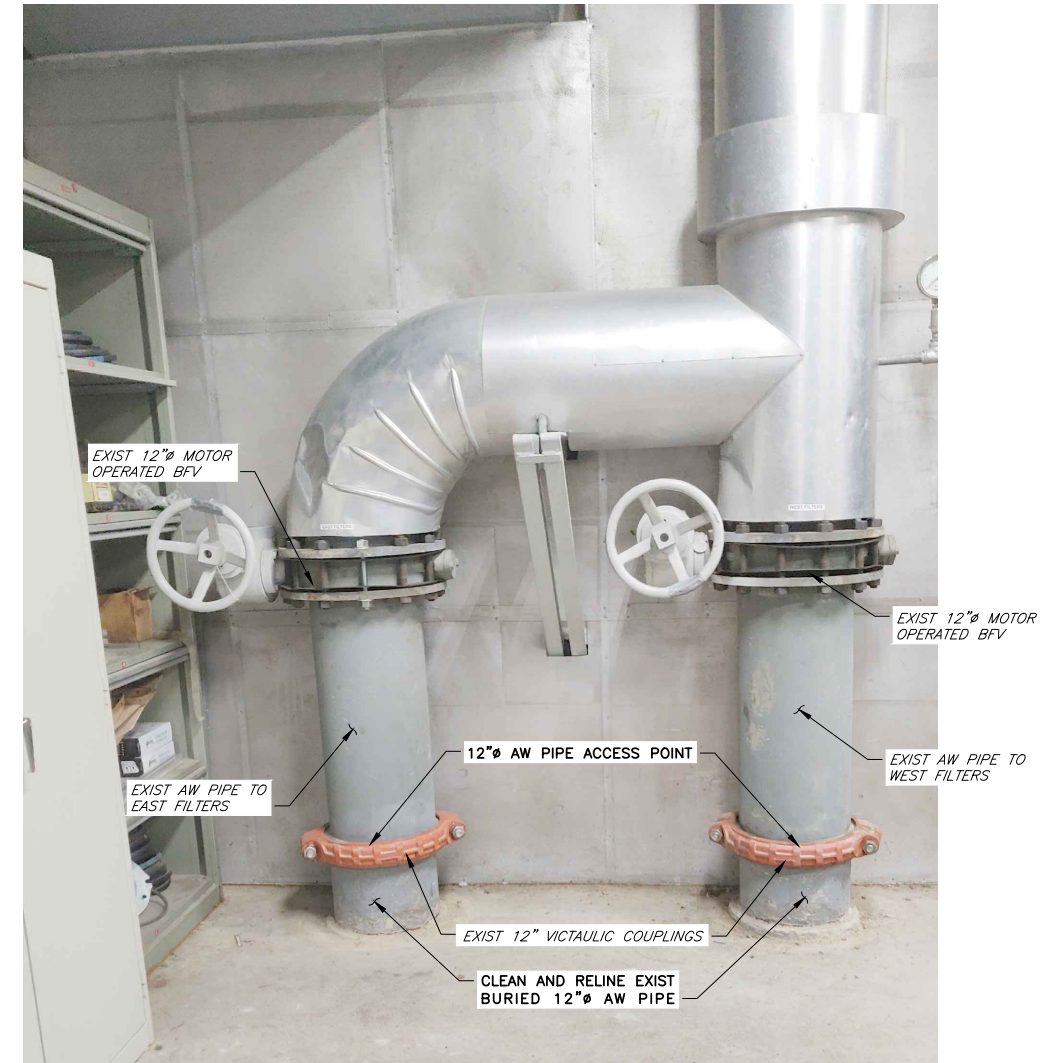
REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
				1. REINSTALLATION OF EXIST SKYLIGHT SHALL BE SEALED WITH SIKAFLEX-1A OR EQUIVALENT.	5/31/2019	<div><div>REGISTERED PROFESSIONAL ENGINEER EMMANUEL ARYEE No. 59383 CIVIL STATE OF CALIFORNIA</div><div>2020-06-01</div></div>		STWTP AIR WASH PIPELINE REPLACEMENT PROJECT	AS SHOWN	93764004
								WEST AND EAST FILTER GALLERY SECTION PHOTOS II	VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF AVOIDING INCH ON THIS SHEET, USE SCALES ACCORDINGLY	SHEET CODE: M-05
										SHEET NUMBER: 15 OF 26

USERNAME: Patkey 6/25/2020 9:51 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\SHEETS\M-06.dwg

DOCUMENT NUMBER: SWT-M-9328-64509




DETAIL **1** **BLOWER ROOM SITE MAP**  
D-01 SCALE: 1/2" = 1'



SECTION **A** **12"Ø AW PIPE BLOWER ROOM ACCESS**  
- SCALE: NTS

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES

DATE 5/31/2019	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT
DESIGN O. NGA		
DRAWN O. NGA		
CHECKED A. SAINI		
PROJECT ENGINEER		DATE

PROJECT NAME AND SHEET DESCRIPTION: <b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>  <b>BLOWER ROOM PIPE ACCESS DETAIL</b>	SCALE AS SHOWN	PROJECT NUMBER <b>93764004</b>
	VERIFY SCALES 0 1"  BAR IS ONE INCH ON ORIGINAL DRAWING IF AIR LINE INCH ON THIS SHEET, USE SCALES ACCORDINGLY	SHEET CODE: <b>M-06</b>
	Attachment 4 16 OF 26	SHEET NUMBER: 16 OF 26



4

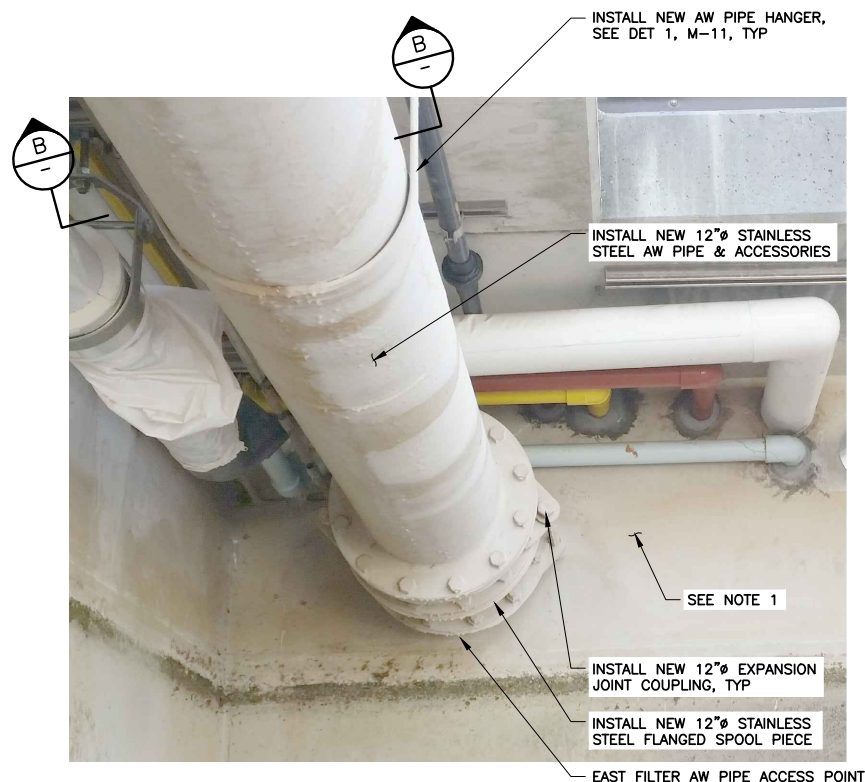
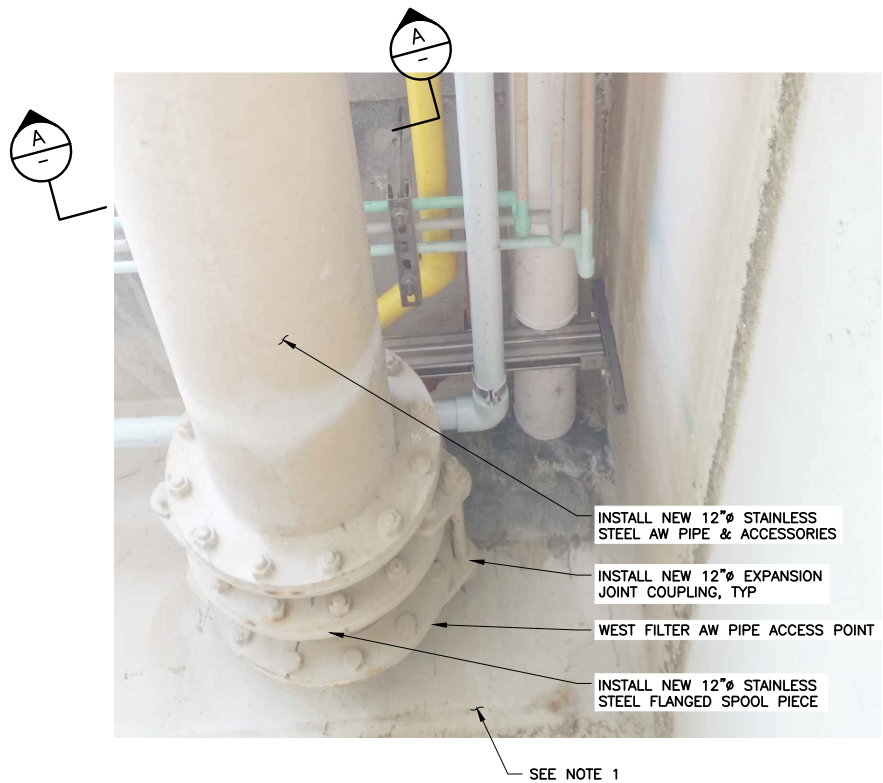
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2

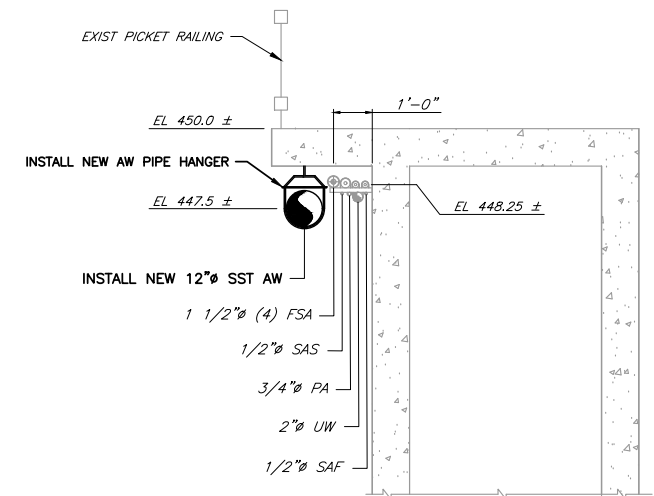
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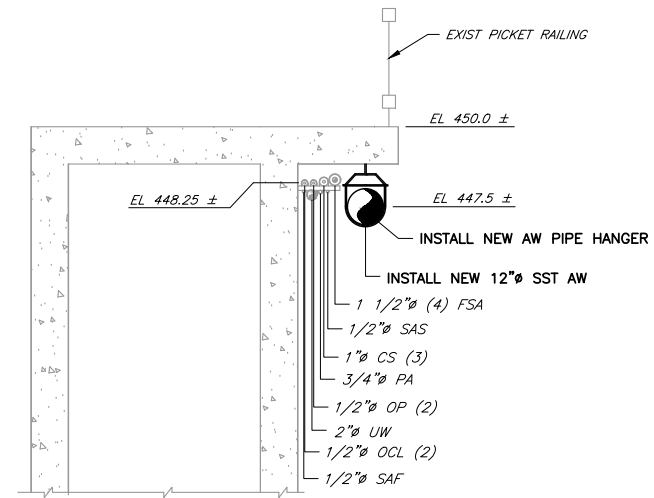
A B C D E F G H



DETAIL **1** **12"Ø AW PIPE WEST FILTER ACCESS\***  
D-01 SCALE: NTS



SECTION **A** **WEST FILTERS SECTION**  
SCALE: NTS

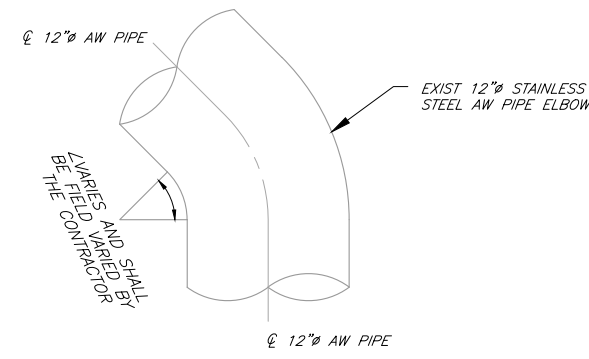


SECTION **B** **EAST FILTERS SECTION**  
SCALE: NTS

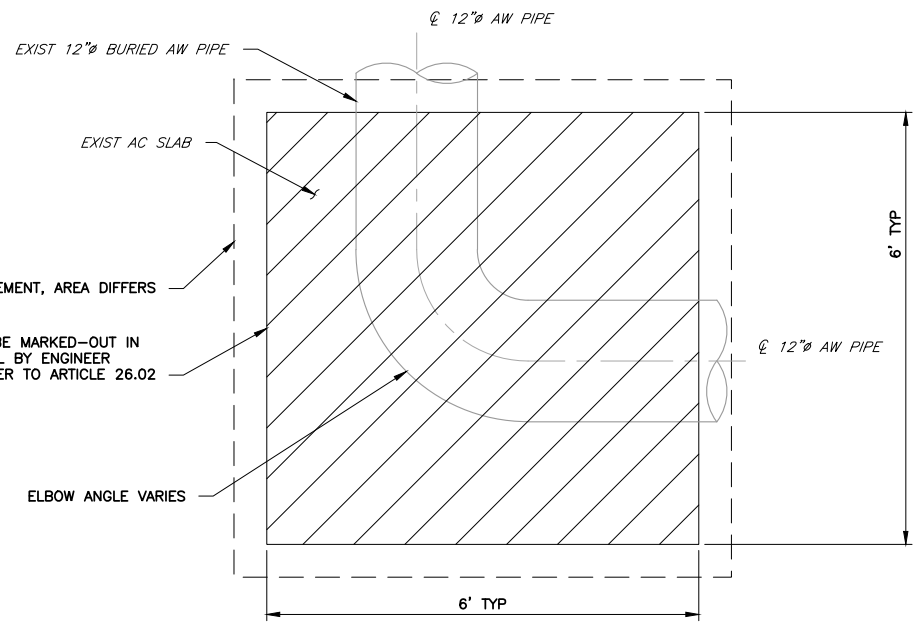
REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
				1. SCAFFOLDING MAY BE REQUIRED TO COMPLETE WORK INSIDE THE FILTER GALLERY. * 12"Ø AW PIPE EAST FILTER ACCESS (OPPOSITE HAND SIDE) NOT SHOWN	5/31/2019	<div>REGISTERED PROFESSIONAL ENGINEER EMMANUEL ARYEE No. 59383 CIVIL STATE OF CALIFORNIA 2020-06-01 PROJECT ENGINEER DATE</div>		<b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>	AS SHOWN	<b>93764004</b>
								<b>FILTER GALLERY PIPE ACCESS DETAIL</b>	VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF AIR LINE INCH ON THIS SHEET, DOUBLE SCALES ACCORDINGLY	SHEET CODE: <b>M-07</b>
										SHEET NUMBER: 17 OF 26

USERNAME: Patrkay 6/25/2020 9:51 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\Sheets\M-08.dwg

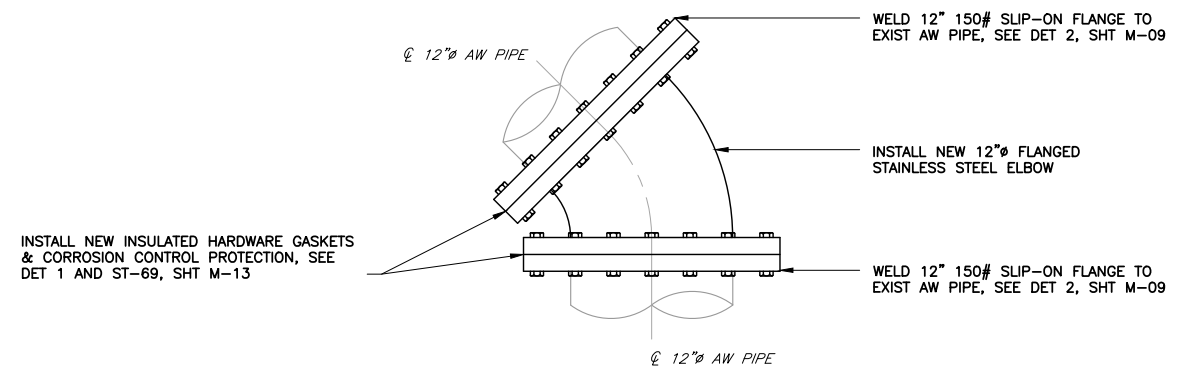
DOCUMENT NUMBER: SWT-M-9328-64511



**DETAIL 1** **EXIST 12"Ø AW PIPE ELBOW – GENERAL**  
SCALE: NTS



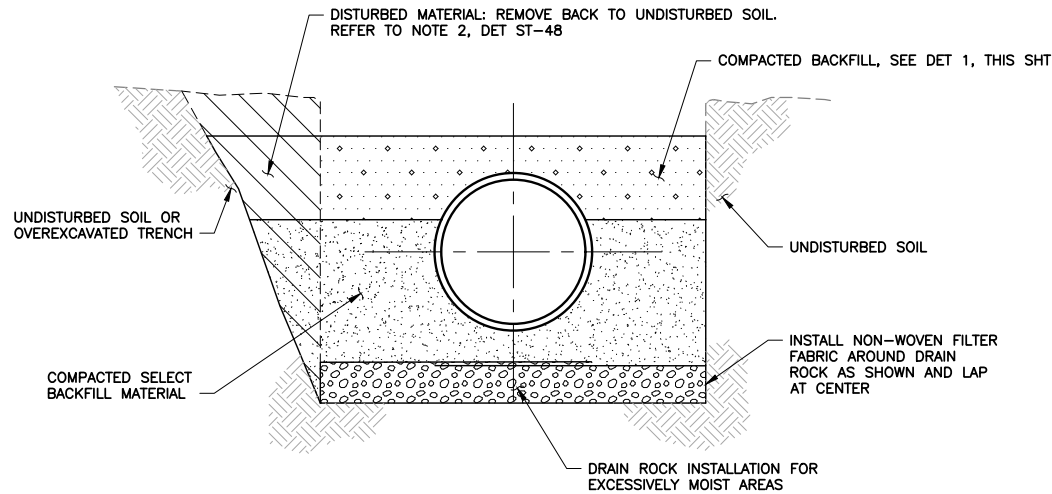
**DETAIL 3** **TYPICAL ASPHALT CONCRETE SAWCUT LIMITS**  
D-01  
SCALE: NTS



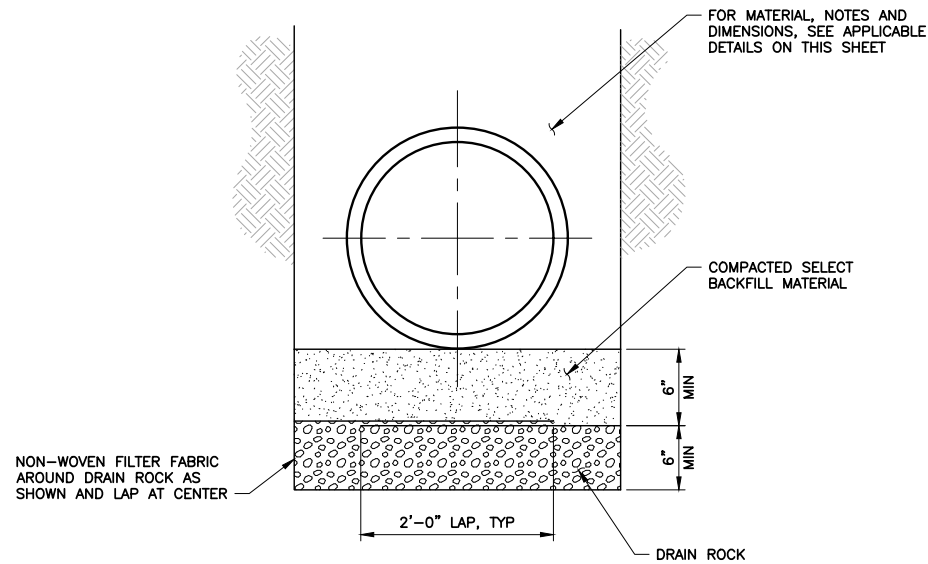
**DETAIL 2** **PROP 12"Ø AW PIPE ELBOW – GENERAL**  
SCALE: NTS

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
					5/31/2019	<div>REGISTERED PROFESSIONAL ENGINEER EMMANUEL ARYEE No. 59383 CIVIL STATE OF CALIFORNIA 2020-06-01 PROJECT ENGINEER DATE</div>		<b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>	AS SHOWN	<b>93764004</b>
					DESIGN			<b>BURIED AIR WASH PIPE ACCESS DETAILS</b>	VERIFY SCALES	SHEET CODE:
					O. NGA				0 1"	<b>M-08</b>
					DRAWN				BAR IS ONE INCH ON ORIGINAL DRAWING IF AVOIDING INCH ON THIS SHEET, SCALE SCALES ACCORDINGLY	SHEET NUMBER:
					O. NGA					18 OF 26
					CHECKED					
					E. ARYEE					

4  
2  
1  
DOCUMENT NUMBER: SWT-M-9328-64512  
USERNAME: Patrick 6/25/2020 9:51 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\SHEETS\M-09.dwg



OVEREXCAVATION OR CAVE-IN CORRECTIVE PROCEDURE



DRAIN ROCK INSTALLATION

DETAIL 3 TRENCH EXCAVATION AND BACKFILL  
D-01 SCALE: NTS

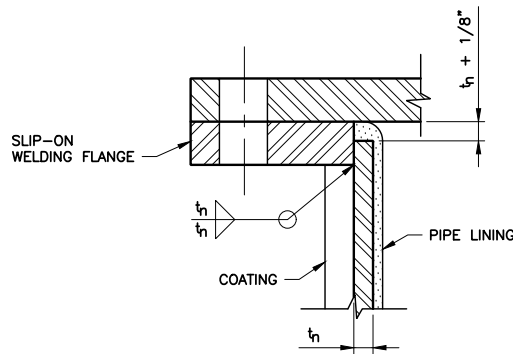
NOTES:

1. PAY LIMIT LINES INDICATE BOUNDARIES FOR CALCULATION OF QUANTITIES OF PAVEMENT REMOVAL AND REPLACEMENT AND OF TRENCH EXCAVATION AND BACKFILL. TRENCHING SHALL CONFORM TO SAFETY REQUIREMENTS REGARDLESS OF PAY LIMITS SHOWN.
2. ALL OVEREXCAVATION OR DISTURBED NATIVE MATERIAL SHALL BE REMOVED FROM THE TRENCH AND BACKFILLED WITH THE SAME MATERIAL AS REQUIRED FOR TRENCH BACKFILL FOR THE DESIGNATED DEPTHS.
3. ALL EXISTING FACILITIES DAMAGED BY THE CONTRACTOR SHALL BE RESTORED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITY WITH JURISDICTION. REFER ALSO TO SPECIFICATIONS.
4. SELECT BACKFILL MATERIAL MAY BE USED AS AN ALTERNATIVE TO TYPE "A" AND TYPE "B" BACKFILL.
5. IF UNSUITABLE MATERIAL IS ENCOUNTERED, AS DEFINED IN THE SPECIFICATIONS, OVEREXCAVATE AND REPLACE WITH SUITABLE MATERIAL.
6. MINIMUM TRENCH WIDTH SHALL BE AS SHOWN. VARIATION OF THE TRENCH DIMENSIONS OR CONFIGURATION FROM THOSE SHOWN ON THE DRAWINGS MAY RESULT IN A CHANGE IN THE PIPE DESIGN. SEE SPECIFICATIONS.
7. FOR SOIL CEMENT BEDDING ALTERNATE, SEE DET ST-50.
8. EXISTING ROAD STRUCTURAL SECTIONS VARY. FOR ADDITIONAL INFORMATION SEE SPECIFICATIONS.

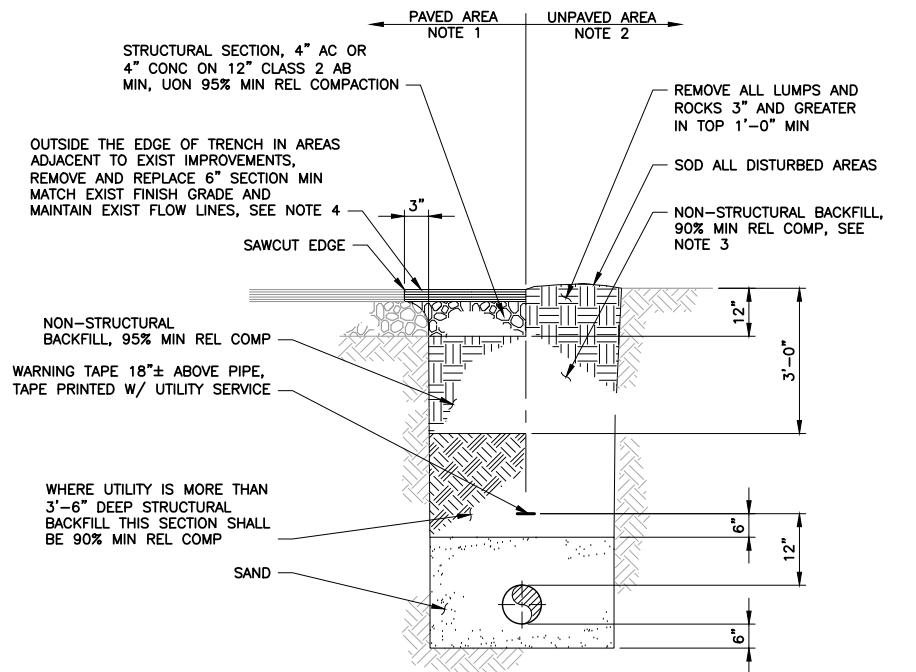
ST-48  
TYP

TRENCH EXCAVATION AND BACKFILL NOTES

SCALE: NTS



DETAIL 2 TYPICAL FLANGE WELD  
- SCALE: NTS




NOTES:

1. STRUCTURAL AREAS INCLUDE BUT ARE NOT LIMITED TO - AREAS TO RECEIVE AC OR CONC PAVEMENT SECTION, ALL SLAB-ON-GRADES, CURBS & GUTTERS, STRUCTURAL IMPROVEMENTS, & WITHIN 3' OF SUCH IMPROVEMENTS.
2. NON-STRUCTURAL AREAS INCLUDE - AREAS TO BE LANDSCAPED OR NOT OTHERWISE REQUIRED TO BE IMPROVED.
3. NON-STRUCTURAL BACKFILL MATERIAL FROM EXCAVATION, FREE FROM STONES, LUMPS EXCEEDING 3" OR GREATEST DIMENSION, VEGETABLE MATTER OR UNSATISFACTORY MATERIAL.
4. WHERE PAVEMENT HAS BEEN UNDERMINED, SAWCUT & REMOVE PAVEMENT TO PROVIDE 6" MIN OF UNDISTURBED BASE SECTION. IF THE EDGE OF THE TRENCH FALLS WITHIN 3' OF THE GUTTER, THE ENTIRE PAVEMENT SHALL BE REMOVED.
5. REFER TO ARTICLE 24.16 FOR SHORING AND BRACING REQUIREMENTS.

DETAIL 1 TYPICAL TRENCH SECTION  
D-01 C-01 SCALE: NTS

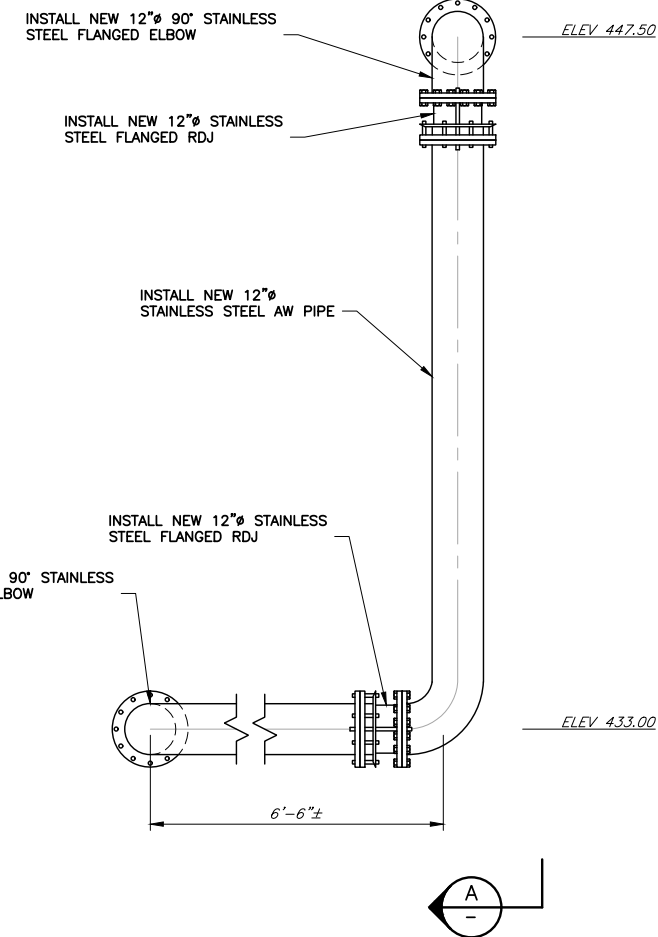
REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES

DATE 5/31/2019 DESIGN O. NGA DRAWN O. NGA CHECKED E. ARYEE	ENGINEERING CERTIFICATION  PROJECT ENGINEER DATE	SANTA CLARA VALLEY WATER DISTRICT
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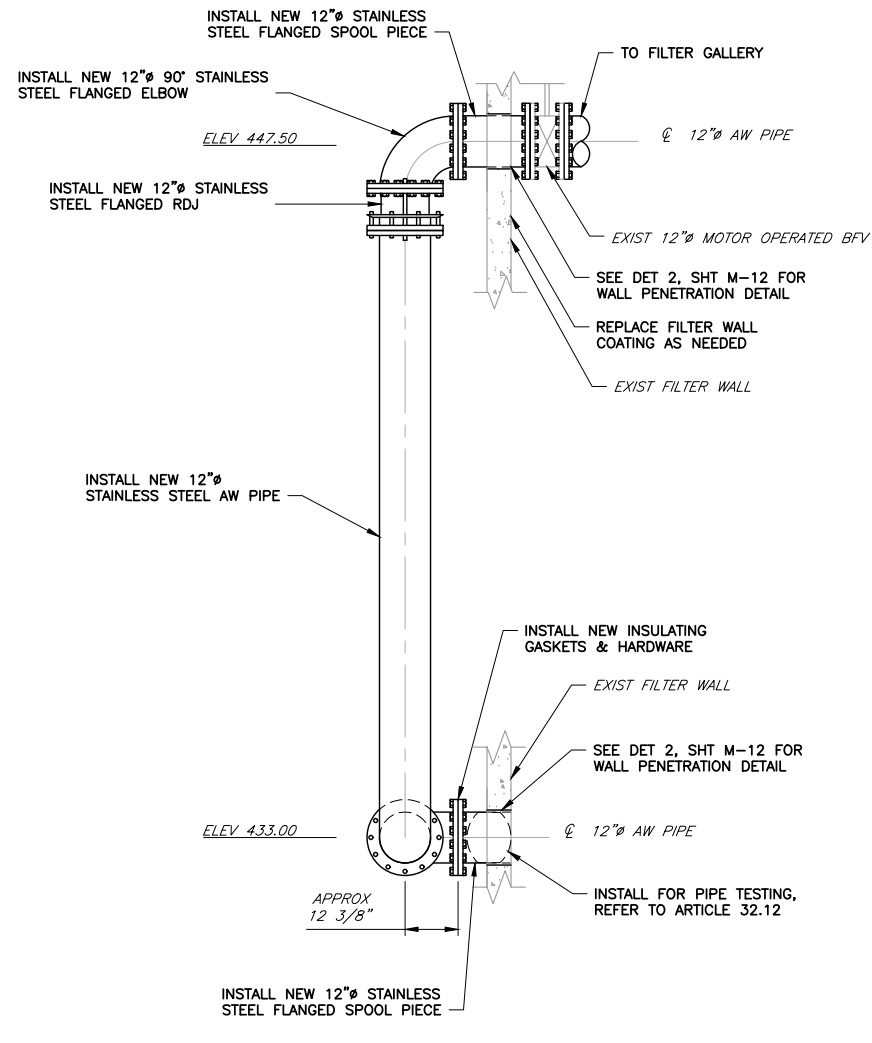
PROJECT NAME AND SHEET DESCRIPTION: <b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>  STANDARD PIPE EXCAVATION DETAILS	SCALE AS SHOWN VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING THIS SHEET ONLY SCALES ACCORDINGLY	PROJECT NUMBER <b>93764004</b> SHEET CODE: <b>M-09</b> SHEET NUMBER: 19 OF 26
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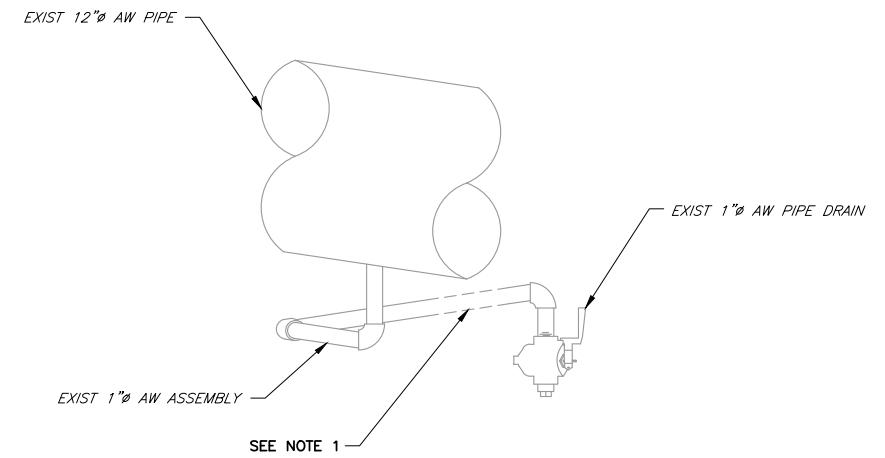
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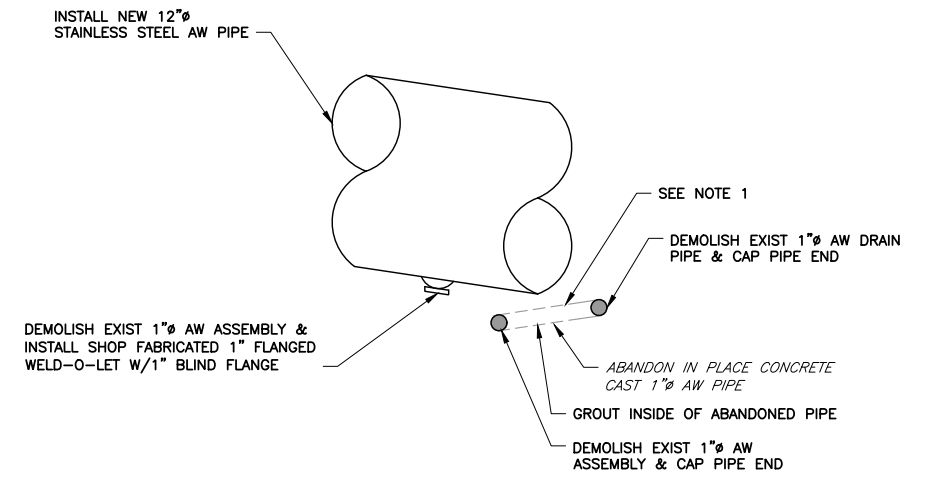
**DETAIL 1**  
**PROPOSED 12"Ø AW ASSEMBLY**  
SCALE: 1/2" = 1'  
D-02  
D-03



**SECTION A**  
**PROPOSED 12"Ø AW ASSEMBLY**  
SCALE: 1/2" = 1'



**DETAIL 2**  
**EXIST 1"Ø AW ASSEMBLY**  
SCALE: NTS  
D-02



**DETAIL 3**  
**PROPOSED 1"Ø AW ASSEMBLY**  
SCALE: NTS  
D-02

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
				1. FILTER GALLERY WALL NOT SHOWN FOR CLARITY 2. DETAIL 1 DEPICTS EAST FILTER GALLERY ASSEMBLY, WEST FILTER GALLERY ASSEMBLY IS A MIRROR IMAGE	5/31/2019			<b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>	AS SHOWN	<b>93764004</b>
								<b>AIR WASH PIPING DETAILS AND SECTIONS</b>	VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF AIR LINE INCH ON THIS SHEET, USE SCALES ACCORDINGLY	<b>M-10</b>
										SHEET NUMBER: 20 OF 26

Technical drawing showing a side view of a zinc-plated threaded rod assembly. The assembly consists of a vertical rod passing through a concrete wall and an adjustable clevis hanger. The rod is secured with a 1" hex nut. The concrete wall has a 1-1/8" anchor hole. Dimensions are provided: 5" MIN EMBED for the rod in the concrete, 12" for the total height of the assembly, and 4" TYP for the height of the clevis hanger. Labels include: DRILL & EPOXY 1-1/8" ANCHOR HOLE, ZINC PLATED THREADED ROD, 1" HEX NUT, and ADJUSTABLE CLEVIS HANGER.

1. (\*) DENOTES PIPES AT WEST FILTERS ONLY, WEST FILTERS ARE SHOWN EAST FILTERS ARE THE OPPOSITE HAND OF DETAIL.

DETAIL 2 TYPICAL FILTER SECTION\*

D-03

D-02

SCALE: 3/16" = 1'

Attachment 4

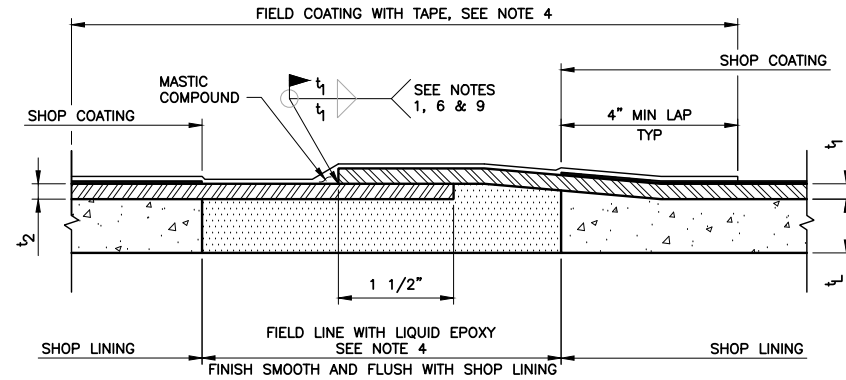
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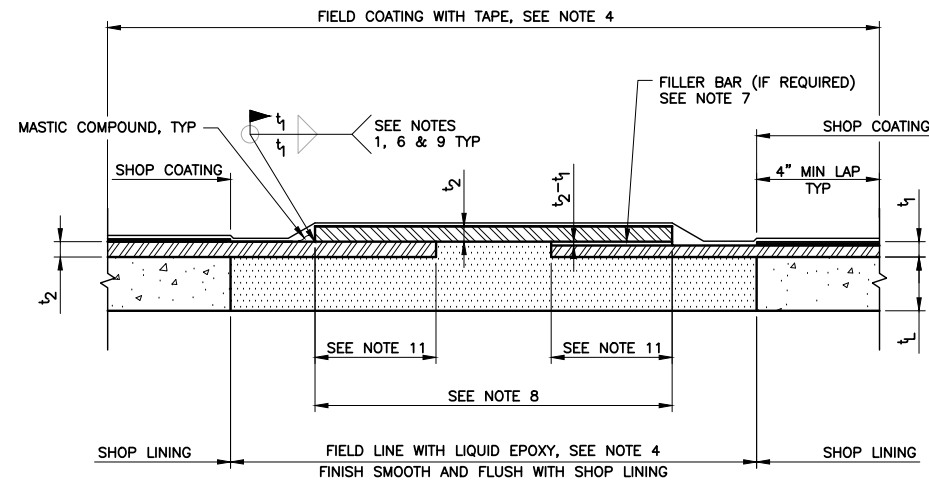
2

DOCUMENT NUMBER: SWT-M-9328-64515

1

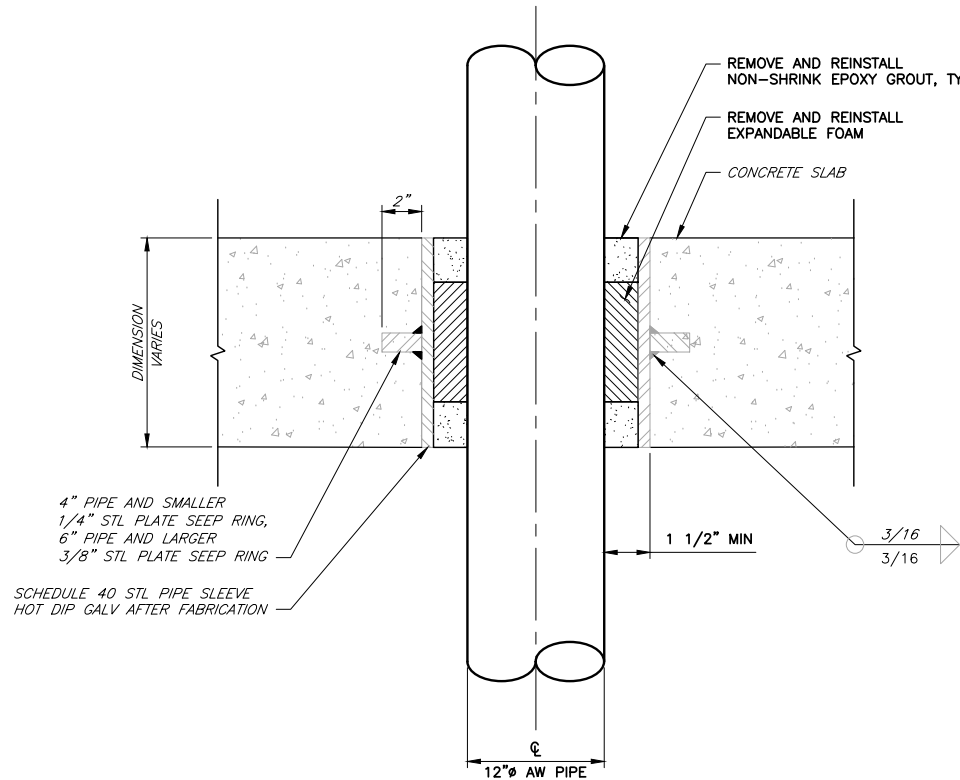


LAP WELD

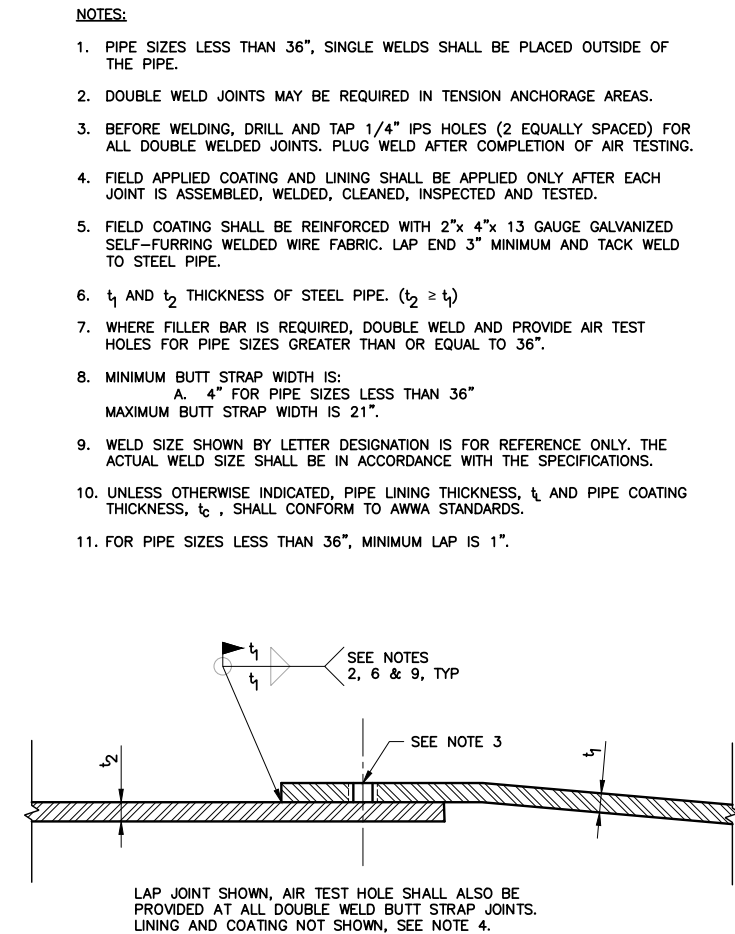


BUTT STRAP

DETAIL 3 FIELD JOINT - LIQUID EPOXY COATED  
SCALE: NTS



DETAIL 2 PIPE PENETRATION THRU CONCRETE FILTER WALL  
SCALE: NTS



DETAIL 1 NOTES AND AIR TEST HOLE FOR DOUBLE WELD JOINT  
SCALE: NTS

NOTES:

- PIPE SIZES LESS THAN 36", SINGLE WELDS SHALL BE PLACED OUTSIDE OF THE PIPE.
- DOUBLE WELD JOINTS MAY BE REQUIRED IN TENSION ANCHORAGE AREAS.
- BEFORE WELDING, DRILL AND TAP 1/4" IPS HOLES (2 EQUALLY SPACED) FOR ALL DOUBLE WELDED JOINTS. PLUG WELD AFTER COMPLETION OF AIR TESTING.
- FIELD APPLIED COATING AND LINING SHALL BE APPLIED ONLY AFTER EACH JOINT IS ASSEMBLED, WELDED, CLEANED, INSPECTED AND TESTED.
- FIELD COATING SHALL BE REINFORCED WITH 2"x 4"x 13 GAUGE GALVANIZED SELF-FURRING WELDED WIRE FABRIC. LAP END 3" MINIMUM AND TACK WELD TO STEEL PIPE.
- t1 AND t2 THICKNESS OF STEEL PIPE. (t2 ≥ t1)
- WHERE FILLER BAR IS REQUIRED, DOUBLE WELD AND PROVIDE AIR TEST HOLES FOR PIPE SIZES GREATER THAN OR EQUAL TO 36".
- MINIMUM BUTT STRAP WIDTH IS:  
A. 4" FOR PIPE SIZES LESS THAN 36"  
MAXIMUM BUTT STRAP WIDTH IS 21".
- WELD SIZE SHOWN BY LETTER DESIGNATION IS FOR REFERENCE ONLY. THE ACTUAL WELD SIZE SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- UNLESS OTHERWISE INDICATED, PIPE LINING THICKNESS, tL AND PIPE COATING THICKNESS, tC, SHALL CONFORM TO AWWA STANDARDS.
- FOR PIPE SIZES LESS THAN 36", MINIMUM LAP IS 1".

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES

DATE 5/31/2019	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT
DESIGN O. NGA		
DRAWN M. KOST		
CHECKED		
E. ARYEE		

PROJECT NAME AND SHEET DESCRIPTION: <b>STWTP AIR WASH PIPELINE REPLACEMENT PROJECT</b>	SCALE AS SHOWN 0 1" VERIFIED SCALES BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT INDICATED, USE SCALES ACCORDING TO SHEET NUMBER	PROJECT NUMBER <b>93764004</b>
STANDARD PIPING DETAILS I	Attachment 4 Page 386 of 390	SHEET CODE: <b>M-12</b>
		SHEET NUMBER: 22 OF 26

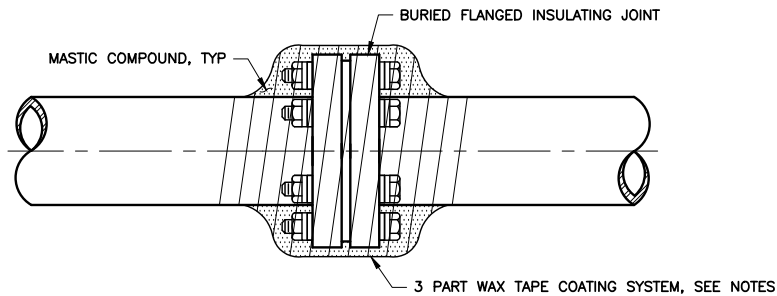
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FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\SHEETS\M-13.dwg

2

DOCUMENT NUMBER: SWT-M-9328-64517

1



NOTES:

1. BURIED FLANGED INSULATING JOINTS SHALL BE COATED WITH A WAX TAPE COATING SYSTEM CONSISTING OF THE FOLLOWING:
  - A. WAX TAPE PRIMER APPLIED ON ALL EXPOSED SURFACES OF FLANGE, BOLTS AND NUTS.
  - B. WAX TAPE WRAPPED WITH ONE (1") INCH OVERLAP ON PREVIOUSLY PRIMED SURFACES.
  - C. PLASTIC WRAPPER APPLIED OVER WAX TAPE.
2. WAX TAPE COATING SHALL OVERLAP PIPE COATING A MINIMUM OF FOUR (4") INCHES.

**BURIED FLANGE INSULATING JOINT**

**DETAIL 1**



**CORROSION CONTROL PROTECTION**

SCALE: NTS

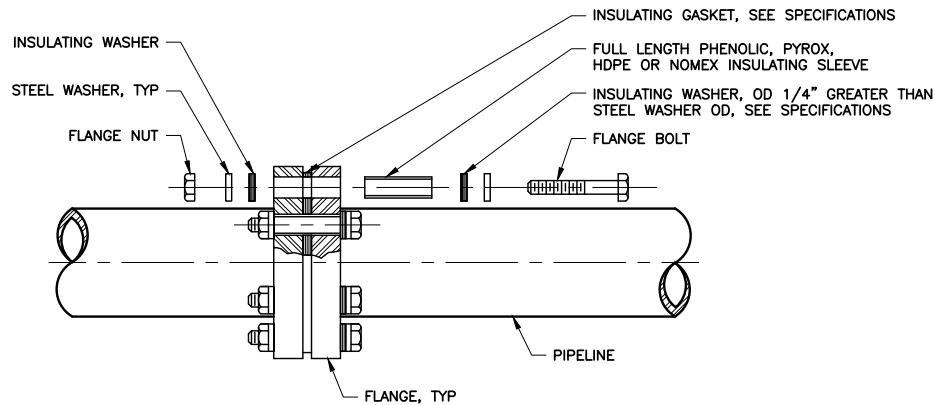
NOTES:

1. INSTALL INSULATING JOINTS AT THE LOCATIONS SHOWN ON THE DRAWINGS AND AS REQUIRED BY THE SPECIFICATIONS.
2. ALL BOLT HOLES SHALL BE REAMED AFTER FITTING FLANGES TOGETHER BUT BEFORE INSERTING INSULATING SLEEVES.
3. APPLY 3 PART WAX TAPE COATING SYSTEM. SEE NOTE 1, DET ST-68.
4. TAPES TO LAP OVER ON VALVE BODY OR FITTING A MINIMUM OF 4".
5. INSULATING WASHERS ARE REQUIRED ON BOTH SIDES OF ALL BURIED FLANGED INSULATING JOINTS.
6. INSTALL TEST LEADS AS REQUIRED AND BRING LEADS TO TEST STATION AS SHOWN ON DETS ST-77 THRU ST-79.
7. FOR PIPE INSTALLATION WITH SOIL-CEMENT BEDDING, INSTALL REFERENCE ELECTRODE IN NATIVE MATERIAL.



**MISCELLANEOUS CORROSION CONTROL NOTES**

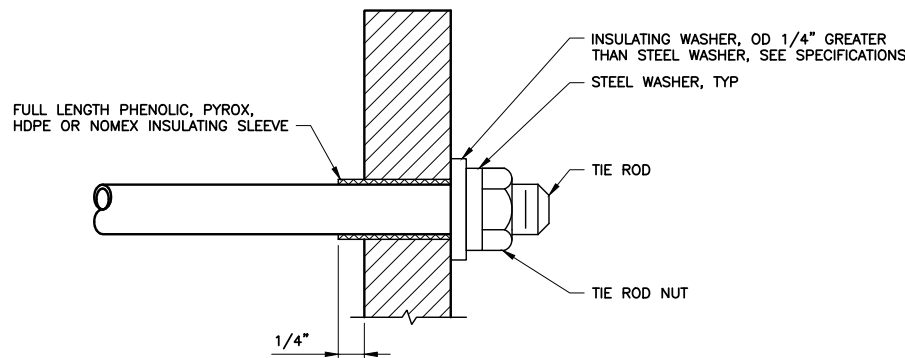
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NOTES:

1. FOR BURIED INSTALLATIONS, INSTALL WAX TAPE COATING, SEE DET ST-68.
2. DO NOT COAT OR SPRAY INSULATING COMPONENTS WITH GREASE.
3. POLYETHYLENE AND MYLAR INSULATING SLEEVES ARE NOT ACCEPTABLE AND WILL BE REJECTED.
4. SEE FIELD LINING AT FLANGED INSULATING JOINT.

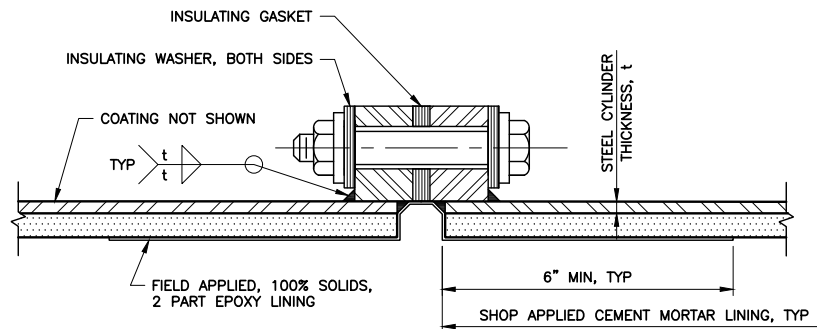
**FLANGED**



NOTES:

1. FOR BURIED INSTALLATIONS, INSTALL WAX TAPE COATING, SEE BURIED FLANGE INSULATING JOINT, DET ST-68.
2. DO NOT COAT OR SPRAY INSULATING COMPONENTS WITH GREASE.
3. POLYETHYLENE AND MYLAR INSULATING SLEEVES ARE NOT ACCEPTABLE AND WILL BE REJECTED.
4. SEE BELOW FOR FIELD LINING AT FLANGED INSULATING JOINT.

**TIE ROD**



**FIELD LINING AT FLANGED**



**CORROSION CONTROL INSULATING JOINTS**

SCALE: NTS

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES

DATE 5/31/2019	ENGINEERING CERTIFICATION
DESIGN O. NGA	 2020-06-01 PROJECT ENGINEER DATE
DRAWN O. NGA	
CHECKED E. ARYEE	

SANTA CLARA VALLEY WATER DISTRICT

PROJECT NAME AND SHEET DESCRIPTION:

**STWTP AIR WASH PIPELINE REPLACEMENT PROJECT**

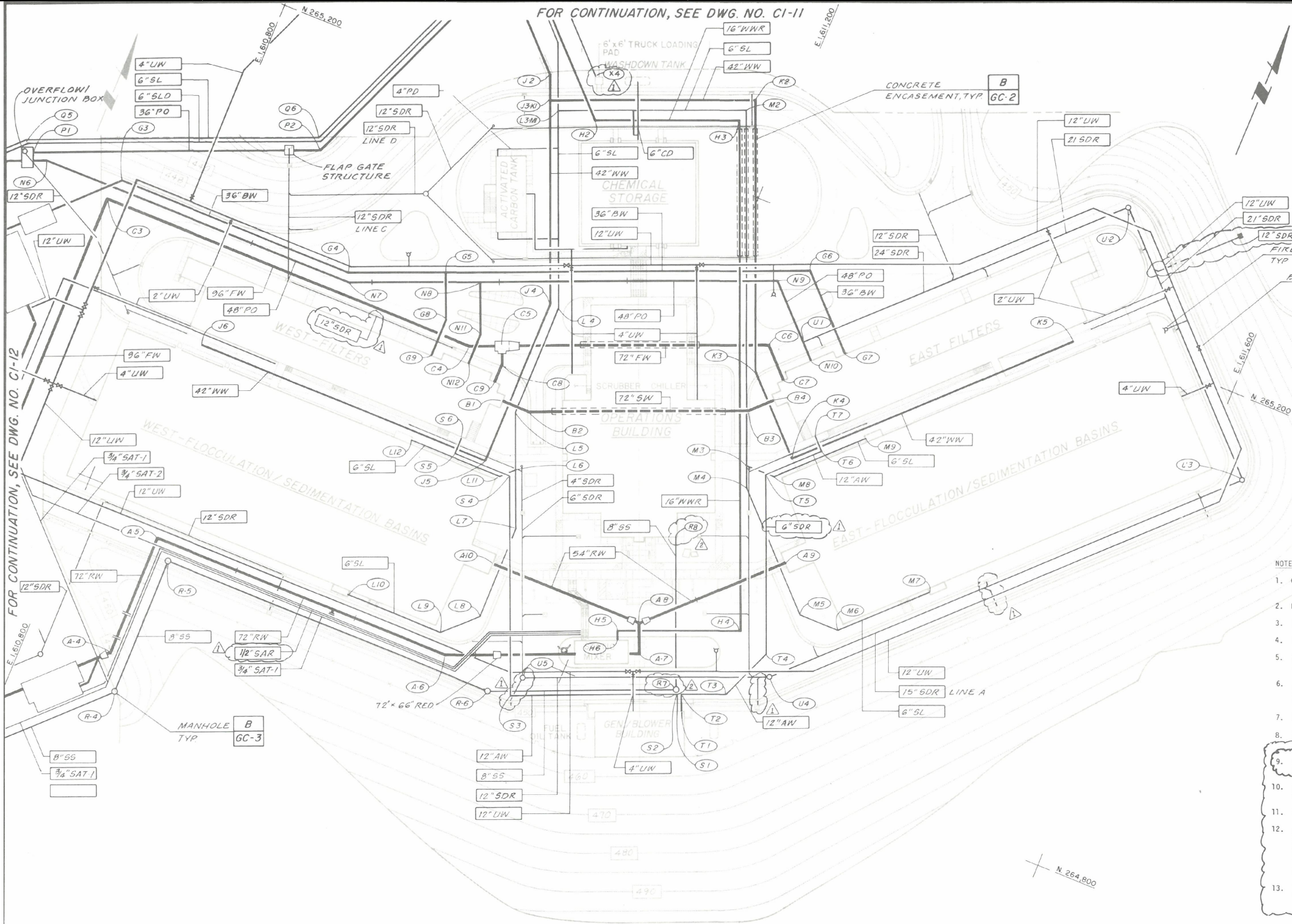
**STANDARD CORROSION CONTROL DETAILS**

SCALE AS SHOWN	PROJECT NUMBER <b>93764004</b>
VERIFY SCALES 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING 1/8" = 1' SCALE 1/4" = 2' SCALE 1/2" = 4' SCALE 3/4" = 6' SCALE 1" = 8' SCALE	SHEET CODE: <b>M-13</b>
	SHEET NUMBER: 24 OF 26



USERNAME: Patrick 6/25/2020 9:52 AM  
FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\Sheets\R-01.dwg

DOCUMENT NUMBER: SWT-R-9328-64517



- NOTES:
1. (A-9) INDICATES COORDINATE FOR YARD PIPING, SEE DWG. NO. CI-11 FOR PIPELINE DATA TABLE.
  2. FOR CATCH BASIN AND DRAINAGE MANHOLE SCHEDULES, SEE DWG. NO. CI-3.
  3. FOR UTILITY WATER SYSTEM SCHEMATIC, SEE DWG. NO. 1M-12.
  4. 6" PVC CARRIER PVC W/1-1"AA, 1-1"20 AND 1-1" SPARE.
  5. UTILITY BOX AS REQUIRED FOR INSTALLATION OF 6" CHEMICAL CARRIER PIPE.
  6. LOCATION OF FLEXIBLE COUPLINGS, INSULATING FLANGE JOINTS AND ELECTROLYSIS TEST STATIONS ARE SHOWN ON MECHANICAL OR STRUCTURAL DRAWINGS FOR EACH STRUCTURE.
  7. WELD ALL JOINTS UNLESS OTHERWISE SHOWN OR SPECIFIED.
  8. FOR STRUCTURE UNDERDRAINS, SEE MECHANICAL AND STRUCTURAL DRAWINGS.
  9. FOR ELECTRICAL PULLBOX AND MANHOLE LOCATIONS AND DRAINAGE SEE DRAWINGS GE-3 AND GE-6.
  10. FOR DRAINAGE PIPING IN CHEMICAL PIPE TRENCHES SEE DRAWINGS 1M-13, 5M-1 AND 5M-3.
  11. 6" SDR SHALL BE PVC PIPING. REFERENCE DRAWING GM-1.
  12. APPROXIMATELY 200' OF F.O.R. AND 200' OF F.O.S. PIPING SHALL BE PLACED IN THE PIPE TRENCH FROM THE STATIC MIXER TO THE MECHANICAL ROOM OF THE OPERATIONS BUILDING. THIS PIPING SHALL NOT BE THE "SECONDARY CONTAINMENT" TYPE AS IT RUNS IN THE TRENCH. (EARLIER PIPE RUNS ALONG THIS LINE, WHICH ARE BURIED, MUST BE THE "SECONDARY CONTAINMENT" TROUGH.)
  13. INVERT OF SLOT DRAIN SHALL SLOPE FROM EL. 448.94 AT HIGH END TO EL. 448.64 AT OUTLET END (TO 4" SDR).

**WARNING**  
THIS DRAWING  
APPROXIMATELY ONE-HALF  
ORIGINAL SCALE

**FOR REFERENCE ONLY**

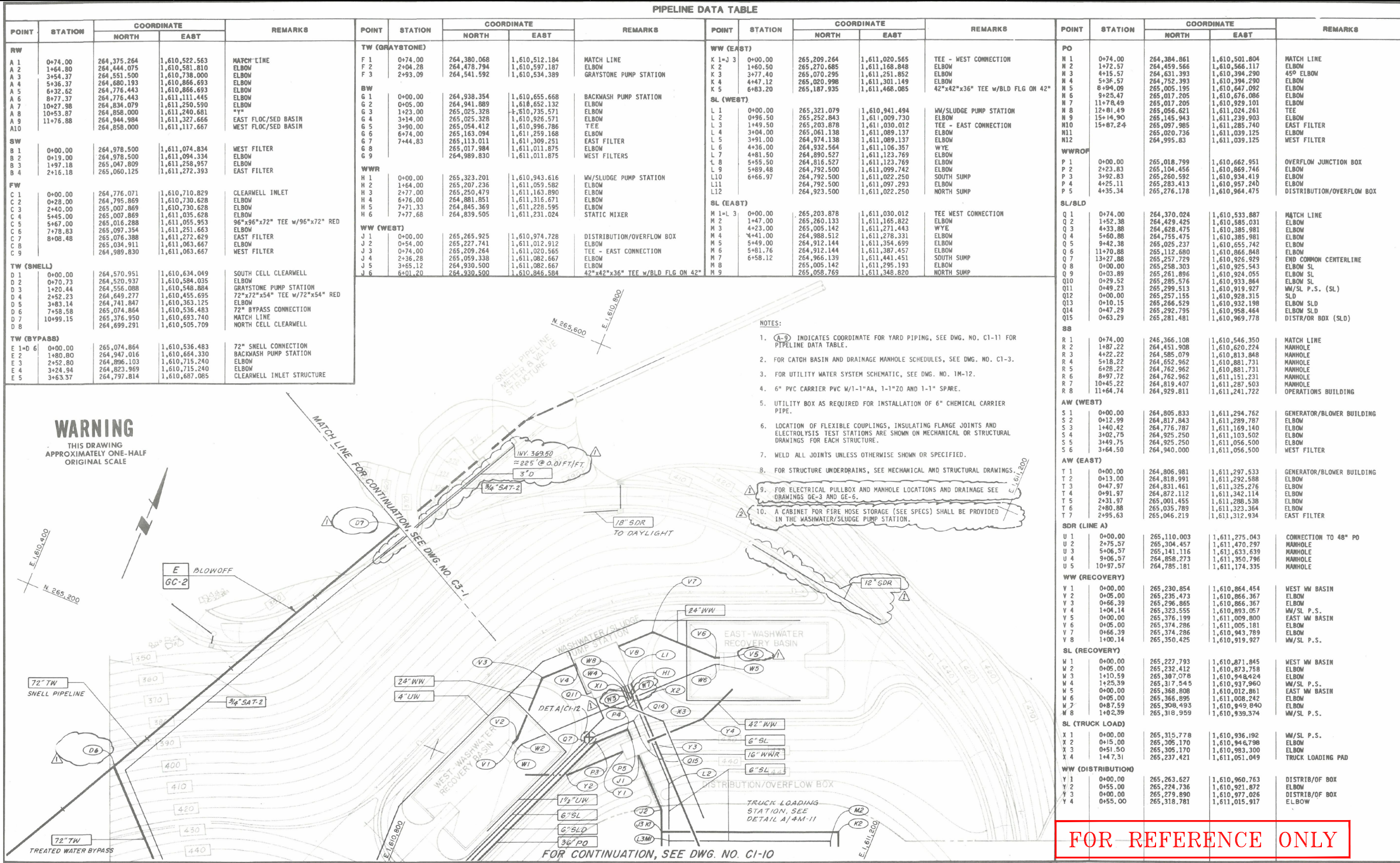
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CHECKED: [Signature] 010487 2/28/86 PROJECT ENGINEER		RECOMMENDED: [Signature] 010487 2/28/86 PROJECT ENGINEER				VERIFY SCALES: 0 1" BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY		YARD PIPING PLAN 1 OF 3			

REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
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					DESIGN				VERIFY SCALES	SHEET CODE:
					A. SAINI				0 1"	R-01
					DRAWN				BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY	SHEET NUMBER:
					M. KOST					24 OF 26
					CHECKED					
					E. ARYEE					
					PROJECT ENGINEER	2020-06-01		REFERENCE 1 YARD PIPING PLAN 1 OF 3		



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FILENAME: K:\Active Projects\MP-93764004\STWTP Air Wash PL Replacement\SHEETS\R-02.dwg

DOCUMENT NUMBER: SWT-R-9328-64518



				SCALE:		SUBMITTED				ACCEPTED BY:				SANTA CLARA VALLEY WATER DISTRICT				DRAWING NO	
				DESIGNED <u>M.D. M.../S...</u>		<u>Carl B. Thowaldson</u> <u>CO15376</u> <u>2/28/86</u>				<u>C. Thowaldson</u>				SANTA TERESA PROJECT				CI-11	
				DRAWN <u>J.S. ...</u>		PROJECT ENGINEER R.C.E. NO. DATE				DIVISION ENGINEER R.C.E. NO. 22948									
				CHECKED <u>M.D. M...</u>		RECOMMENDED				VERIFY SCALES 0 1"									
				1" = 40'		<u>A. ...</u>				BAR IS ONE INCH ON ORIGINAL DRAWING									
						JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.				IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY									
						R.C.E. NO. DATE				YARD PIPING PLAN 2 OF 3									

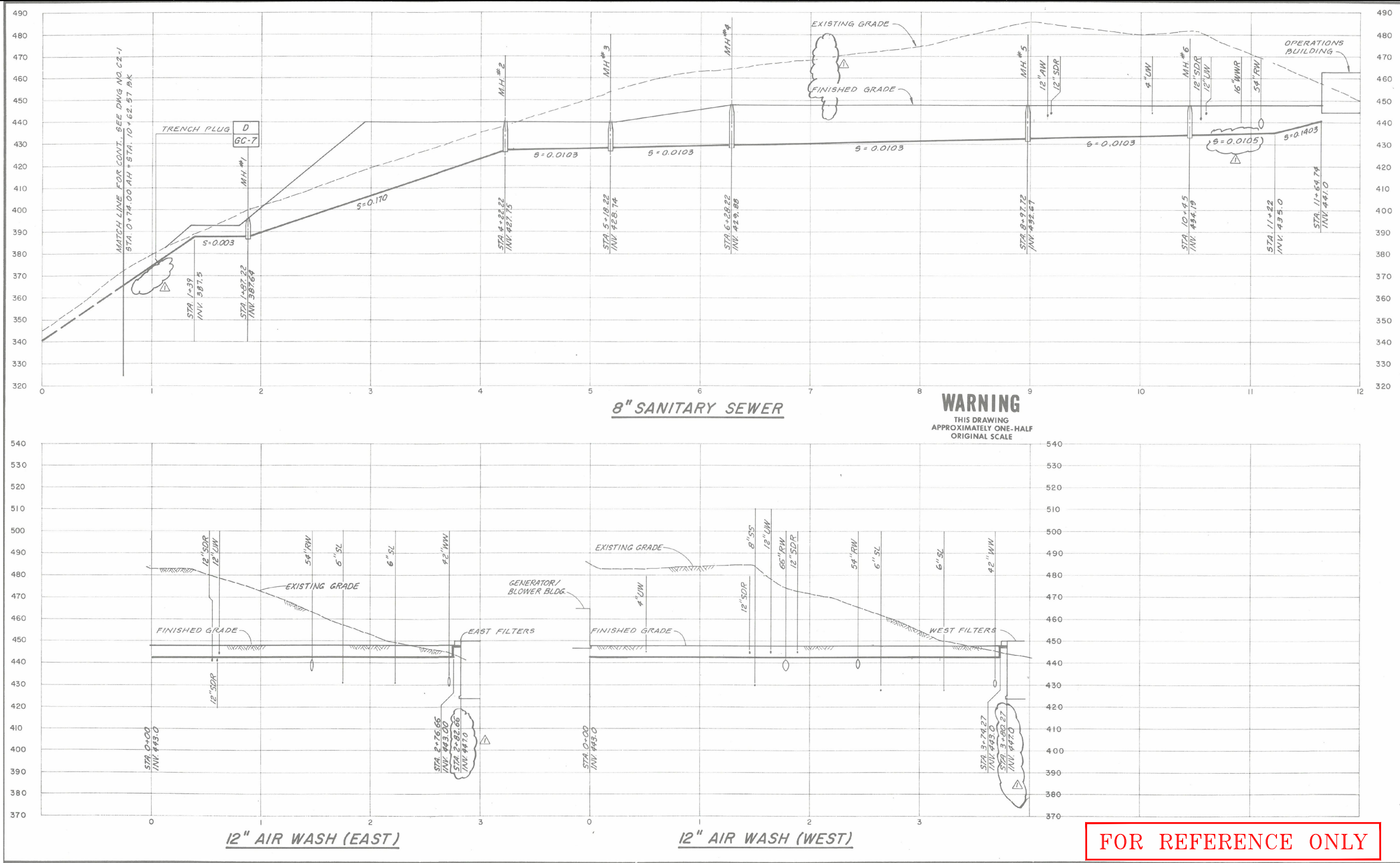
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										5/31/2019								NOT TO SCALE		93764004	
												A. SAINI						VERIFY SCALES		SHEET CODE:	
												M. KOST						0 1"		R-02	
												CHECKED						BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		SHEET NUMBER:	
												E. ARYEE								25 OF 26	
												PROJECT ENGINEER								Page 369 of 390	

STWTP AIR WASH PIPELINE REPLACEMENT PROJECT



USERNAME: Patkey 6/25/2020 9:52 AM  
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DOCUMENT NUMBER: SWT-R-9328-64519



FOR REFERENCE ONLY

SCALE: HORIZ. 1" = 40' VERT. 1" = 20'		DESIGNED: <i>[Signature]</i> DRAWN: <i>[Signature]</i> CHECKED: <i>[Signature]</i>		SUBMITTED: <i>[Signature]</i> PROJECT ENGINEER: <i>[Signature]</i> RECOMMENDED: <i>[Signature]</i> JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.		ACCEPTED BY: <i>[Signature]</i> DIVISION ENGINEER: <i>[Signature]</i> VERIFY SCALES: 0 1"		SANTA CLARA VALLEY WATER DISTRICT SANTA TERESA PROJECT YARD PIPING PROFILES SANITARY SEWER PIPELINE		DRAWING NO. CI-20	
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REV	DESCRIPTION	DATE	APPR	REFERENCE INFORMATION AND NOTES	DATE	ENGINEERING CERTIFICATION	SANTA CLARA VALLEY WATER DISTRICT	PROJECT NAME AND SHEET DESCRIPTION:	SCALE	PROJECT NUMBER
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					DESIGN				VERIFY SCALES	SHEET CODE:
					A. SAINI				0 1"	R-03
					DRAWN				BAR IS ONE INCH ON ORIGINAL DRAWING	SHEET NUMBER:
					M. KOST				IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	26 OF 26
					CHECKED					
					E. ARYEE					
					PROJECT ENGINEER	2020-06-01		REFERENCE III YARD PIPING PLAN 3 OF 3		