Contract Documents for the Construction of

Sacramento Regional Wastewater Treatment Plant

CATHODIC PROTECTION
REHABILITATION PROJECT PHASE II
RFB 8270

VOLUME 1 OF 2

PART A - SPECIFICATIONS

MAY 2018
SECTION 00 01 10

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GENERAL CONDITIONS

PART 1 -- GENERAL INFORMATION

1.01 DEFINITIONS AND TERMS

A. Whenever the following terms, titles, or abbreviations are used in these specifications or in any document or instrument where these specifications govern, the intent and meaning shall be as herein defined. The meanings shall be applicable to the singular, plural, masculine and feminine of the words and terms.

Accept  The receiving by either the District or the Contractor with the intent to retain. In so doing, the recipient may or may not acknowledge compliance with the requirements. Acceptance does not convey approval.

Acceptance of Work  Formal action of the Board in determining that the Contractor's work has been completed in accordance with the contract and in notifying the Contractor in writing of the acceptability of the work.

Act of God  Tidal waves and earthquakes above 3.5 on the Richter scale, in accordance with Section 7105 of the Public Contracts Code.

Addenda  Supplemental written specifications or drawings issued after the Notice to Contractors and prior to execution of the contract which modify or interpret the contract documents by addition, deletion, clarification, or corrections.

As-Built Documents  The information which is specified for submission to the Engineer in accordance with the PROJECT RECORD DOCUMENTS Section (01 78 39) of the Contract Documents.

As Shown, Etc.  Where "as shown," "as indicated," "as detailed," "as specified," or words of similar import are used, it shall be understood that reference is made to the contract documents unless specifically stated otherwise. Where "as directed," "as permitted," "approved," or words of similar import are used, it shall be understood that the direction, permission, requirements, or acceptance of the Engineer is intended unless stated otherwise.
<table>
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<th>Term</th>
<th>Definition</th>
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<tr>
<td><strong>Bid</strong></td>
<td>When submitted on the prescribed bid form, properly signed and guaranteed, the Bid constitutes the offer of the Bidder to complete the Work at the price shown on the Bidder’s bid form.</td>
</tr>
<tr>
<td><strong>Bidder</strong></td>
<td>Any individual, firm, partnership, corporation, or combination thereof, submitting a bid for the Work, acting directly or through a duly authorized representative.</td>
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<tr>
<td><strong>Board</strong></td>
<td>The Board of Directors of the Sacramento Regional County Sanitation District, a sanitation district of the State of California.</td>
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<td><strong>Bypass</strong></td>
<td>Discharge of untreated or partially treated wastewater to surface waters or drainage courses of the United States as further defined in the NPDES permit.</td>
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<td><strong>Calendar Day</strong></td>
<td>Calendar day shall be defined as every day shown on the calendar, Sundays and holidays included.</td>
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<td><strong>Change Order</strong></td>
<td>The authorization from the Board for additions, deletions or revisions to the Work which may have been directed by Field Instruction.</td>
</tr>
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<td><strong>Conflict</strong></td>
<td>A case where an item of work is shown or specified differently in two or more places in the contract documents. An item of work shown in one portion of the contract documents but not in another is not a conflict.</td>
</tr>
<tr>
<td><strong>Conformed Set</strong></td>
<td>The original contract documents revised to incorporate all supplement information issued by addenda.</td>
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<tr>
<td><strong>Consultant</strong></td>
<td>An individual, firm or organization retained by the District to provide professional services. The authority of the consultant will be designated by the Resident Engineer.</td>
</tr>
<tr>
<td><strong>Contract</strong></td>
<td>The written agreement covering the performance of the work and the furnishing of labor, materials, tools, and equipment in the construction of the work. The Contract shall include the Notice to Contractors, Bid Form, plans, specifications, addenda, and contract bonds; also any and all supplemental agreements amending or extending the work contemplated and which may be required to complete the work in a substantial and acceptable manner. Supplemental agreements are written agreements covering alterations, amendments, or extensions to the contract and include contract change orders.</td>
</tr>
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**Contract Documents**

The plans, specifications, addenda, and change orders for a particular project for construction or installation at the Sacramento Regional Wastewater Treatment Plant.

**Contract Price**

The Total Bid Amount as listed on the Bidding Schedule. Also known as the Bid Price.

**Contract Time**

Number of days stated in the contract for the completion of the work or portions thereof.

**Contractor**

The person or persons, firm, partnership, corporation, or combination thereof, private or municipal, who has entered into a contract with the District as party or parties of the second part or their legal representatives.

**Contractor's Plant and Equipment**

Equipment, material, supplies, and all other items, except labor, brought onto the site by the Contractor to carry out the work, but not to be incorporated in the work.

**Controlling Operations or Critical Path**

Any activity which, if delayed, would cause a postponement in the completion of the Work.

**Day**

Day shall mean calendar day unless preceded by the word "working" or "business".

**Design Consultant**

The individual, firm or organization that prepared the plans and specifications for the Work. May also be referred to as the Design Engineer.

**Direct**

Instructions from the District, the Engineer, the Resident Engineer, or the District Representative to the Contractor for execution.

**District**

The Sacramento Regional County Sanitation District, a sanitation district of the State of California. May also be referred to as Owner.

**District Representative**

The individual designated to act as the agent of the District on specific matters related to the Contract. Also known as the Resident Engineer.

**Diversion**

The process or act of ceasing discharge of plant effluent to the Sacramento River and discharging instead to emergency storage Basin A. The liquid so diverted.

**Drawings**

The graphical representation of the Work which depicts design intent, measurements, and information for a project or portion thereof. Also referred to as the “plans.”
Engineer

The Administrator of the Sanitation District Agency, who is the District Engineer for the District. This individual may act individually or through designated representatives (District Representative).

Equipment

Equipment shall be defined as meeting any of the following criteria:

1. Mechanical, electrical, instrumentation, or other device with one or more moving parts.

2. Devices requiring an electrical, pneumatic, electronic, or hydraulic connection.

3. Anything having an equipment tag number.

Field Instruction

The written directive from the Resident Engineer requiring an addition, deletion, or revision to the Work which may result in a change in the Total Contract Amount or the Contract Time.

Furnish

To provide and deliver to the work site or another location for incorporation into the Work.

Herein

Refers to information presented in the contract documents.

Inspector

The individual authorized to act as the agent for the Resident Engineer in the observation of the Work for conformance with the requirements of the Contract.

Install

Placing, erecting, or constructing complete in place including testing any item, equipment, or material.

Maintenance-Managed Item

A subset of the Master Equipment List, a Maintenance-Managed Item (MMI) is an item that the District determines a need for ongoing maintenance and uploads the data into the District Maintenance Management System.

MajorEquipment

Specific items of equipment, materials or systems that have been designated in the Technical Specifications. These items typically are new to the SRWTP, have long lead times, are critical to training and commissioning schedules, and are subject to special progress payment procedures in accordance with the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

Master Equipment List

The SRWTP maintains a plant-wide Master Equipment List (MEL) in a database format. The MEL contains specific information for each piece of mechanical, electrical, and instrumentation equipment (including all accessories), as well as, each manual valve, slide gate,
process manhole, electrical manhole and handhole, control unit, and utility station. All existing equipment abandoned in-place, demolished, replaced, relocated, renumbered, or modified by the project, as well as all future equipment, is also included.

May

Refers to permissive actions.

New

An item which has never been used and has been manufactured, produced and supplied within the last 12 months.

Notice to Proceed

Direction from the District to the Contractor to begin the Work.

Operation and Maintenance (O&M) Information

The information which is specified for submission in accordance with the OPERATION AND MAINTENANCE DATA Section (01 78 23).

Outage

An unplanned and/or unintentional disabling of a process or equipment item which makes it unsuitable to perform its intended function.

Paragraph

For reference or citation purposes, paragraph shall refer to the paragraph, or paragraphs, called out by section number and alphanumeric designator. For example, this definition is found in paragraph 1.01 of the GENERAL CONDITIONS Section (00 72 00); Contractor equipment is discussed in paragraph 2.03B of the GENERAL CONDITIONS Section (00 72 00).

Person

The term, person, includes firms, companies, corporations, partnerships, and joint ventures.

Plans

The official project plans and standard drawings, profiles, typical cross sections, general cross sections, working drawings, and supplemental drawings, or reproductions thereof, approved by the District, which show the locations, character, dimensions, and details of the work to be performed. All such documents are to be considered as a part of the plans whether or not reproduced in the contract documents.

Process Area

The existing facilities, channels, tanks, basins, conduits, pipes, tunnels, galleries, buildings, structures, and systems at the Sacramento Regional Wastewater Treatment Plant.
**Project Plans**
The project plans and specific details and dimensions peculiar to the work and are supplemented by the standard drawings insofar as the same may apply. When the term “drawings” is used herein, it shall also be deemed to mean “plans”.

**Project**
The undertaking to be performed under the provisions of the Contract.

**Project Schedule**
The organization and sequencing of activities to complete the Work within the Contract Time.

**Provide**
Furnish and install, modify, relocate, complete and in place including testing.

**Punch List**
A list of items or activities which must be accomplished in order to complete the Work and comply with the requirements of the Contract.

**Resident Engineer**
The on-site District Representative who is the authorized agent of the Engineer and who is responsible for the administration of the contract and inspection of the work to be performed under these specifications.

**Shall**
This term refers to the mandatory requirements of the Contract that must be accomplished by the Contractor.

**Shop Drawings**
All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for Contractor to illustrate some portion of the work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a supplier and submitted by the Contractor to illustrate material or equipment for some portion of the work.

**Shutdown**
A planned action which makes the existing process, system or equipment unable to perform its intended function.

**Specifications**
The directions, provisions, and requirements contained in the contract documents as supplemented by the Sacramento County Standard Specifications. When the term "specifications" or "these specifications" is used, it means the provisions as set forth in the contract documents.

**Specify/Specified**
Refers to information described, shown, noted or presented in any manner in any part of the contract.

**SRCSD**
Sacramento Regional County Sanitation District. Also known as the District or Regional San.
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<td>An individual, firm or organization which has a contract to do a portion of the Work regardless of tier. A subcontractor may have a contract with the Contractor or with another subcontractor.</td>
</tr>
<tr>
<td><strong>Submittal Approved</strong></td>
<td>The marking of a submittal to indicate &quot;No Exceptions Taken&quot; or &quot;Make Corrections Noted.&quot;</td>
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<td><strong>Supplier</strong></td>
<td>An individual, firm or organization which provides materials, equipment, supplies, systems or specially fabricated items for the Work.</td>
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<tr>
<td><strong>System</strong></td>
<td>A set or arrangement of equipment and associated tanks, channels, piping, electrical, instrumentation and controls so related as to form a unit function.</td>
</tr>
<tr>
<td><strong>Tag Number</strong></td>
<td>A unique identification number assigned by the Engineer to each piece of equipment; manholes, handholes, device, or component including electrical raceways, enclosures, cables, and instrumentation loops and points.</td>
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<tr>
<td><strong>Technical Specifications</strong></td>
<td>Divisions 2 through 50 of the Contract.</td>
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<td><strong>Time Extension</strong></td>
<td>An increase in the Contract Time.</td>
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<tr>
<td><strong>Will</strong></td>
<td>This term refers to actions by the District, the Engineer, or the Resident Engineer that are required during the course of the Contract.</td>
</tr>
<tr>
<td><strong>Work</strong></td>
<td>The activities and construction that are contemplated, required or designated by the plans, the specifications or other contract documents including changes directed by the District.</td>
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### 1.02 JOINT VENTURE CONTRACTOR

A. In the event the Contractor is a joint venture of two or more contractors, the grants, covenants, provisos and claims, rights, power, privileges and liabilities of the contract shall be construed and held to be several as well as joint. Any notice, order, direct request or any communication required to be or that may be given by the District or the Engineer to the Contractor under this contract, shall be well and sufficiently given to all persons being the Contractor if given to any one or more of such persons. Any notice, request or other communication given by any one of such persons to the District or the Engineer
under this contract shall be deemed to have been given by and shall bind all persons
being the Contractor.

1.03 CONTRACT REQUIREMENTS

A. SUCCESSORS' OBLIGATIONS:

1. The grants, covenants, provisos and claims, rights, powers, privileges and liabilities
contain in the contract documents shall be read and held as made by and with, and
granted to and imposed upon, the Contractor and the District and their respective
heirs, executors, administrators, successors and assigns.

B. SUBCONTRACTING AND ASSIGNMENT:

1. If any part of the Work to be done under this Contract is subcontracted, the
subcontract shall be in writing and shall provide that all work to be performed
thereunder shall be performed in accordance with the terms of the Contract
Documents, and further that the terms and conditions of the Contract Documents,
including those provisions relating to the resolution of disputes and claims, are
expressly incorporated therein. The subcontracting of any or all of the Work to be
done will in no way relieve the Contractor of any part of its responsibility under the
Contract. Certified copies of subcontract agreements and purchase orders for
materials and equipment will be provided by the Contractor to the District upon
request.

2. The performance of the contract may not be subcontracted or assigned except upon
written consent of the District, and no such subcontracting or assignment shall be
permitted which would relieve the original Contractor or sureties of their
responsibilities under the contract.

3. The Contractor shall not, without the written consent of the District, (a) substitute
any party as subcontractor in place of the subcontractor designated in the original
bid, or (b) permit any such subcontract to be assigned or transferred, or allow it to be
performed by anyone other than the original subcontractor listed on the bid. Consent
to such substitution or subletting shall only be given: (1) When the subcontractor
listed in the bid after having had a reasonable opportunity to do so fails or refuses to
execute a written contract, when such written contract, based upon the general terms,
conditions, plans, and specifications for the project involved or the terms of such
subcontractor's written bid, has been presented by the prime contractor; or (2) when
the listed subcontractor becomes bankrupt or insolvent; or (3) when the listed
subcontractor fails or refuses to perform the assigned subcontract; or (4) when the
listed subcontractor fails or refuses to meet the bond requirements of the prime
contractor as set forth in Section 4108 of the Public Contract Code; or (5) when the
prime contractor demonstrates to the Engineer, subject to the further provisions set
forth in Section 4107.5 of the Public Contract Code that the name of the
subcontractor was listed as a result of an inadvertent clerical error; or (6) when the
listed subcontractor is not licensed pursuant to the Contractor License Law as set
forth in the Business and Professions Code; or (7) when the Engineer determines that the work performed by the listed subcontractor is substantially unsatisfactory and not in substantial accordance with the plans and specification, or that the subcontractor is substantially delaying or disrupting the progress of the work.

4. In the event of such substitution, the District shall give at least three working days' notice in writing to the listed subcontractor unless the said subcontractor involved has advised the District in writing of having knowledge of the prime contractor's request for the substitution.

5. The Contractor may assign monies due under the contract, and such assignment will be recognized by the District, if given proper notice thereof, to the extent permitted by law, but any assignment of monies shall be subject to all deductions provided for in the contract, and all money withheld shall be subject to being used by the District for the completion of the work, in the event that the Contractor should be in default therein.

C. WAIVER OF RIGHTS:

1. Except as herein provided, no action or want of action on the part of the Contractor, District, or Engineer, at any time with respect to the exercise of any right or remedies conferred upon them under this contract shall be deemed to be a waiver on the part of the Contractor and District of any of their rights or remedies. No waiver shall be effective except in writing by the party to be charged. No waiver of one right or remedy shall act as a waiver of any other right or remedy or as a subsequent waiver of the same right or remedy.

D. AMENDMENT OF GENERAL CONDITIONS:

1. These general conditions may be amended after agreement has been signed only by mutual consent of the District and the Contractor in writing.

1.04 COMPLIANCE WITH LAWS AND REGULATIONS

A. The Contractor shall keep fully informed of, and shall observe and comply with, and shall cause any and all persons, firms, or corporations employed by the Contractor or under the Contractor, to observe and comply with all State and National laws and County and municipal ordinances, regulations, orders, and decrees which in any manner affect those engaged or employed in the work, or the materials used in the work, or which in any worker affect the conduct of the work. Particular attention is called to the following:

1. HOURS OF LABOR:

a. Eight hours of labor shall constitute a legal day's work and the Contractor or any subcontractor under the Contractor, in the execution of the contract, shall not require more than eight hours of labor in any calendar day, and forty hours of labor in any calendar week, from any person employed by the Contractor in the
performance of the work under this contract, except as permitted under the provisions of Section 1815, of the Labor Code of the State of California. The Contractor shall forfeit, as penalty to the District $25 for each worker employed by the Contractor or any subcontractor under the Contractor in the execution of the contract for each calendar day during which any worker is required or permitted to labor more than eight hours and for each calendar week during which any worker is required or permitted to labor more than forty hours, in violation of the provisions of such Labor Code.

b. Overtime and shift work may be established by the Contractor with reasonable notice and the written permission of the District.

c. The establishment of regular overtime and shift work does not alter the definition of a working day as specified in the CONTRACT TIME Section (01 14 20).

2. STATE PREVAILING WAGE:

a. Pursuant to Section 1770, and following, of the California Labor Code, the Contractor shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Copies of such prevailing rate of per diem wages are on file at the office of the Sacramento County Labor Compliance Section, 9700 Goethe Road, Suite D, Sacramento, California 95827. Copies shall be made available to any interested party on request, and are also available from the California Department of Industrial Relation’s website at http://www.dir.ca.gov/OPRL/PWD.

b. The wage rates determined by the Director of the California Department of Industrial Relations refer to the expiration dates. Prevailing wage determinations with a single asterisk (*) after the expiration date which are in effect on the date of advertisement for bids remain in effect for the duration of the project. Prevailing wage determinations with double asterisk (**) after the expiration date indicate that the basic hourly wage rate, overtime, and holiday pay rates, and employer payments be paid for work performed after this date, the new rate must be paid and should be incorporated in contracts entered into. The Contractor should contact the Prevailing Wage Unit, DSLR, (415) 703-4774 or the Sacramento County Labor Compliance Section, (916) 366-2509, to obtain predetermined wage changes. All determinations that do not have double asterisk (**) after the expiration date remain in effect for the duration of the project.

c. The Contractor shall forfeit, as penalty to the District, not more than $200 for each calendar day, or portion thereof, for each worker paid less than the stipulated prevailing rates for any work done under the contract by the Contractor or by any subcontractor, in violation of the provisions of such Labor Code. The provisions of Section 1775 of said Labor Code shall be complied with.
3. LABOR DISCRIMINATION:
   a. Attention is directed to Section 1735 of the Labor Code of the State of California, which prohibits discrimination in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons and provides for penalties therefore.

4. SACRAMENTO COUNTY RESIDENTS:
   a. Attention is directed to the fact that, under the provisions of Article V, Section 15(i), of the Charter of the County of Sacramento, preference must be given to Sacramento County Residents.

5. APPRENTICES:
   a. Attention is directed to Section 1777.5 of the Labor Code of the State of California, concerning the employment of apprentices, and the Contractor is required to comply with the provisions of said section.

6. TRAVEL AND SUBSISTENCE PAYMENTS:
   a. Attention is directed to the requirements of Section 1773.8 of the Labor Code of the State of California. The Contractor shall make travel and subsistence payments to each worker workman, needed to execute the work, in accordance with the requirements in said Section 1773.8.

7. WORKER'S COMPENSATION:
   a. Pursuant to the requirements of Section 1860 of the Labor Code, the Contractor will be required to secure the payment of worker's compensation for employees in accordance with the provisions of Section 3700 of the Labor Code.

8. USE OF PESTICIDES:
   a. The Contractor shall comply with all rules and regulations of the Department of Food and Agriculture, the Department of Health, the Department of Industrial Relations, and all other agencies which govern the use of pesticides required in the performance of the work on the contract.
   b. Pesticides shall include but shall not be limited to herbicides, insecticides, fungicides, rodenticides, germicides, nematocides, bactericides, inhibitors, fumigants, defoliants, desiccants, soil sterilands, and repellents.
   c. Any substance or mixture of substances intended for preventing repelling, mitigating, or destroying weeds, insects, diseases, rodents, or nematodes and any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant shall be considered a pesticide.
9. PAYROLL RECORDS:

a. Attention is directed to Section 1776 of the California Labor Code, a portion of which is quoted below. Regulations implementing said Section 1776 are located in Section 16000 and Sections 16401 through 16403 of Title 8, California Administrative Code. The Contractor shall be responsible for compliance by subcontractors.

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 employed in conjunction with the public work."

c. "The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the contractor on the following basis:

1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or authorized representative on request.

2) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available upon request by the public for inspection and copies thereof made; provided, however, that a request by the public shall be made through either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided the records, reimburse the costs of preparation by the contractor, subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of the contractor.

d. Each contractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested the records within 10 days after receipt of a written request.

e. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the awarding body, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an
individual's name, address and social security number. The name and address of
the contractor awarded the contract or performing the contract shall not be
marked or obliterated.

f. The contractor shall inform the body awarding the contract of the location of the
records enumerated under subdivision (a), including the street address, city and
county, and shall, within five working days, provide a notice of a change of
location and address.

g. In the event of noncompliance with the requirements of this section, the
contractor shall have 10 days in which to comply subsequent to receipt of written
notice specifying in what respects the contractor must comply with this section.
Should noncompliance still be evident after the 10-day period, the contractor
shall, as a penalty to the state or political subdivision on whose behalf the contract
is made or awarded, forfeit $25 for each calendar day, or portion thereof, for each
worker, until strict compliance is effectuated. Upon the request of the Division
of Apprenticeship Standards or the Division of Labor Standards Enforcement,
these penalties shall be withheld from progress payments then due."

1) The penalties specified in subdivision (f) of Labor Code Section 1776 for
noncompliance with the provisions of said Section 1776 may be deducted
from any moneys due or which may become due to the Contractor.

10. REPORTING REQUIREMENTS AND SANCTIONS:

a. Failure to provide specific information, records, reports, certifications, or any
other documents required for compliance with these specifications shall be
considered noncompliance. The minimum documents required include the
following:

1) FORM SCLC-0001 - LIST OF SUBCONTRACTORS: Required from the
prime contractor and each subcontractor with a lower tier subcontractor. Due
within 10 days after the date of the pre-construction conference or within 10
days after the date of award of the subcontract. The later of the two dates will
apply.

2) CERTIFIED PAYROLL REPORTS: Required from the prime contractor
and each subcontractor, regardless of the subcontract amount or the type of
procurement, for every payroll period in which work is performed. Due
within 10 working days of the ending date of the payroll period.

3) FRINGE BENEFIT STATEMENT: Required from the prime contractor and
each subcontractor if fringe benefits are paid to an approved plan, fund, or
program. Due with first certified payroll report and any time the fringe
benefit amounts change. Not required if the fringe benefits are paid in cash
to the employees.
4) FORM CC-257-MONTHLY EMPLOYMENT UTILIZATION REPORT: Required from the prime contractor and each subcontractor with a subcontract in excess of $10,000. Due by the fifteenth day of each month for the previous month.

5) Other documentation may be required depending on the source of funding for the project.

b. Contractors found to be in noncompliance will be advised of the specific deficiencies and urged to make immediate corrections. They should also be advised that monetary deductions may be made for failure to effect corrections or delinquencies.

c. If the Contractor fails to correct a deficiency within 15 days after notification, a deduction may be made. In such cases, the deduction shall be 10 percent of the estimated value of the work done during the month, except that the deduction will not exceed $10,000, nor be less than $1,000, and shall be deducted from the next progress payment.

d. Deductions for noncompliance will be in addition to all other deductions provided for in the Contract and will apply irrespective of the number of instances of noncompliance. Deductions may be made separately and additively for each estimate period in which a new deficiency appears. When all deficiencies for a period have been corrected, the deduction covering that period will be released on the next progress payment. Otherwise, the deduction will be retained.

11. WEEKEND, HOLIDAYS, AND NIGHT WORK:

a. It is understood that to complete the Work within the Contract Time, it may be necessary to operate a two or three shift operation for portions of the work. Two or three shift operations may be established as a regular procedure by the Contractor upon notification of the Resident Engineer. Such notification shall be given at least 1 week in advance and shall include the anticipated duration of the additional shifts. Such permission may be revoked by the Resident Engineer if the Contractor fails to maintain adequate force and equipment for reasonable prosecution and to justify inspection of the work, or fails to provide sufficient artificial light to permit the work to be carried on properly and to permit proper inspection, or if the additional shifts create a public nuisance.

b. Unless established as part of the regular work shifts, request to work between 6 p.m. and 6 a.m. or on Sundays or legal holidays must be submitted in writing at least 2 working days in advance of the intended work. In case of an emergency, the Contractor will be allowed to work at night or on Sundays or legal holidays, but must notify the Resident Engineer and the Plant Control Center at (916) 875-9400 immediately. An emergency shall be considered an unforeseen event that poses a danger to the public or to the uncompleted work.
c. The Contractor shall give the Resident Engineer one working day prior written notice of any work to be done on a Saturday, with the location and type of work to be done specified; and any work done without such notice and without the supervision of an inspector may be ordered removed and replaced at the Contractor's expense.

1.05 LAWS, REGULATIONS, AND PERMITS

A. GENERAL:

1. The Contractor shall give all notices and shall procure and pay for all permits and licenses of any kind that may be required to start, carry on, and complete the contract work. Refer to the PERMIT REQUIREMENTS Section (01 41 26) for permits to be obtained by the District. The Contractor shall comply with all laws, ordinances, rules and regulations pertaining to the conduct of the work. The Contractor shall be liable for violations of the law in connection with the Work. If the Contractor observes that the plans, specifications or other portions of the contract documents are at variance with any laws, ordinances, rules or regulations, the Engineer shall be promptly notified in writing of such variance. The Engineer shall promptly review the matter and, if necessary, shall issue a Field Instruction or take any other action necessary to bring about compliance with the law, ordinance, rule or regulation in question. Contractor agrees not to perform work known to be contrary to any laws, ordinances, rules or regulations.

2. Unless otherwise specified herein, permits and licenses from governmental agencies which are necessary only for and during the prosecution of the work and the subsequent guaranty period thereafter shall be secured by the Contractor and paid for by the District.

3. The District will reimburse the Contractor for filing fees required to secure such permits upon presentation of proof of payment of said fees, except that no reimbursement will be paid for the following permits:

   a. Overload, overwidth, and other hauling permits.


   c. Other permits obtained by the Contractor solely for convenience and are not essential for conduct of work.

4. Permits and licenses of regulatory agencies which are necessary to be maintained after the completion of the guaranty period of the contract will be secured and paid for by the District.

B. PROTECTION OF DISTRICT AGAINST PATENT CLAIMS:
1. The Contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless the District, its officers, employees, and agents from all suits at law or claims brought or made by the holder of any invention or patent for, or on account of, the use of any patented materials, equipment, devices, or processes in the construction of, or subsequent operation of, the project. If requested by the Engineer, the Contractor shall furnish acceptable proof of a proper release from all such fees or claims before the final payment is made on this contract.

1.06 LANDS AND RIGHTS-OF-WAY

A. The District shall provide the lands, rights-of-way, and easements upon which the work under this contract is to be done, and such other lands as may be designated on the plans for the use by the Contractor, and the Contractor shall confine the operations to within these limits.

B. Any additional land and access thereto that may be required for temporary construction facilities or storage of materials shall be provided at the Contractor’s expense.

1.07 HEADINGS

A. Headings to parts, divisions, sections, paragraphs, subparagraphs and forms are inserted for convenience of reference only and shall not affect the interpretation of the contract documents.

1.08 SURVEY LAND MONUMENTS

A. Survey land monuments and property marks shall not be moved or otherwise disturbed by the Contractor until an authorized agent, of the agency having jurisdiction over the land monuments or property marks setting, has witnessed or otherwise referenced their location, and only then in accordance with the requirements of the agency having jurisdiction.

PART 2 -- DISTRICT-CONTRACTOR RELATIONS

2.01 AUTHORITY OF DISTRICT

A. AUTHORITY OF ENGINEER:

1. GENERAL:

   a. All claims of the Contractor or questions which may arise as to quality or acceptability of materials furnished and work performed, and as to the manner of performance and the rate of progress of the work; all questions as to the interpretation of the contract, plans and specifications; all questions as to the acceptable fulfillment of the Contract on the part of the Contractor; and all questions as to compensation shall be referred to the Engineer for decision.
2. **CHANGES:**

   a. The District reserves the right to make such modifications or alterations, reductions or omissions, to the specifications and plans, including the right to increase or decrease the quantity of any item or portion of the work or to omit any item or portion of the work, as may be deemed by the Engineer to be necessary or advisable, and to require such extra work as may be determined by the Engineer to be required for the proper completion or construction of the contemplated work.

   b. No change or deviation from the plans or specifications shall be made by the Contractor without written authorization from the Engineer setting forth a complete description of the change.

3. **ACCEPTABILITY OF WORK:**

   a. The Engineer has the authority to make the final determination of the acceptability of the work. The Engineer also has the authority to accept or reject the Resident Engineer's recommendations regarding retention of defective work.

**B. AUTHORITY OF THE RESIDENT ENGINEER**

1. **GENERAL:**

   a. The Resident Engineer is the construction site representative of the District (or District Representative). The Engineer has delegated authority to the Resident Engineer to make decisions regarding questions which may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the work. The Resident Engineer interprets the intent and meaning of the Contract and makes initial decisions with respect to the Contractor's fulfillment of the Contract and the Contractor's entitlement to compensation.

2. **INSPECTION:**

   a. Properly authorized Inspectors shall be considered to be representatives of the Engineer. An Inspector shall have the authority to order the Work stopped, if such action becomes necessary, until the Engineer is notified and has determined that the work may proceed.

   b. The inspection of the work does not relieve the Contractor of any obligation to fulfill the contract as prescribed. Any work, materials or equipment not meeting the requirements and intent of the plans and specifications shall be rejected, and unsuitable work or materials shall be made good, notwithstanding the fact that such work or materials may have previously been inspected or accepted and payment therefore may have been made.
c. Re-examination of any work may be ordered by the Engineer, and such work must be uncovered by the Contractor. The Contractor shall pay the entire cost of such uncovering, re-examination and replacement if the work does not conform to the plans and specifications.

3. CHANGE ORDERS:

   a. The Resident Engineer has the authority to initiate change orders.

2.02 RESPONSIBILITIES OF DISTRICT

A. ATTENTION TO WORK:

1. The District shall notify the Contractor in writing of the name of the Engineer and of the Resident Engineer. The Resident Engineer normally will be at the site of the work. During absences, the Contractor may contact a previously designated representative of the Resident Engineer.

B. DISTRICT'S EMPLOYEES:

1. The District shall be responsible for the adequacy, efficiency, and sufficiency of employees and of any consultant, supplier or contractor employed by the District.

C. LIABILITY OF DISTRICT OFFICIALS:

1. Neither the Engineer, Resident Engineer, nor officers, employees, agents, nor representatives of the District, nor any of them shall be responsible for any liability arising under this contract, except such obligations as are specifically set forth herein.

2.03 AUTHORITY OF CONTRACTOR

A. CONTRACTOR'S REPRESENTATIVE:

1. The Contractor shall notify the District in writing of the name of the person who will act as the Contractor's representative and shall have the authority to act in matters relating to this contract. This person shall have authority to carry out the provisions of the contract and to supply materials, equipment, tools and labor without delay for the performance of the work.

B. CONTRACTOR'S EQUIPMENT:

1. The Contractor shall provide adequate and suitable equipment and means of construction to meet the requirements of the Contract, including completion within the time allotted. Only equipment suitable to produce the quality of work required will be permitted, and specific types of equipment may be requested on component parts of the work.
2. In any case where the use of a particular type or piece of equipment has been banned, or in cases where the Engineer has condemned for use on the work, any piece or pieces of equipment, the Contractor shall promptly remove such equipment from the site of the work. Failure to do so within a reasonable time shall be evidence of a breach of contract.

C. NONRECOGNITION OF SUBCONTRACTORS:

1. No subcontractor will be recognized as such, and all persons engaged in the Work will be considered employees of the Contractor, and their work shall be subject to all the provisions of the Contract.

2.04 RESPONSIBILITIES OF CONTRACTOR

A. RESPONSIBILITY OF THE CONTRACTOR:

1. The Contractor shall do all of the work and furnish all labor, materials, tools, equipment, and appliances, except as otherwise herein expressly stipulated, necessary or proper for performing and completing the work herein required, including any changes authorized by change order, in conformity with the meaning and intent of the plans, specifications, and all provisions of the contract, within the time specified.

2. The work shall be under the Contractor's responsible care and charge until its completion and final acceptance, bearing the entire risk of injury, loss, or damage to any part thereof by causes of any nature whatsoever. The Contractor shall rebuild, repair, restore, and make good all injuries, losses or damage to the Work or the materials occasioned by any cause, and shall bear the entire expense thereof.

3. If any discrepancies are discovered during the course of the work between the plans and conditions in the field, or any errors or omissions in the plans, the specifications, or in the layout given by stakes, points, or instructions, it shall be the duty of the Contractor to inform the Engineer immediately, and the Engineer shall promptly verify the same. Any work done after such discovery until authorized by the Engineer, will be done at the Contractor's risk.

4. In no case shall the use of subcontractors in any way alter the position of the Contractor or any sureties with relation to this contract. When a subcontractor is used, the responsibility for every portion of the work shall still remain with the Contractor.

5. The Contractor shall pay all valid claims of subcontractors, suppliers, and workers.

B. CONDUCT OF EMPLOYEES:

1. The District is committed to providing a safe, secure, and healthful working environment where individuals are free from the threat of violence, aggression,
intimidation, harassment, or retaliation. The Contractor, subcontractors and employees shall conduct themselves in a proper and respectful manner. Any person who threatens, is abusive or harasses another individual shall be immediately removed from the site of the Work and shall not return.

2. Inappropriate behavior by District staff shall be immediately reported.

3. Any employee of the Contractor who fails to follow instructions from the District or is incompetent, unfaithful, intemperate, disorderly, or unsatisfactory behavior shall be immediately removed from the site of the Work and shall not return.

C. TERMINATION OF UNSATISFACTORY SUBCONTRACTS:

1. When any portion of the work which has been subcontracted by the Contractor is not being prosecuted in a satisfactory manner, the subcontract for such work shall be terminated immediately by the Contractor upon written notice from the Engineer, and the subcontractor shall not again be employed on the type of work in which such performance was unsatisfactory.

D. PAYMENT FOR LABOR AND MATERIALS:

1. The Contractor shall pay and require subcontractors to pay any and all accounts for labor including Workers Compensation premiums, State Unemployment and Federal Social Security payments and other wage and salary deductions required by law. The Contractor also shall pay and cause subcontractors to pay any and all accounts for services, equipment, and materials used during the performance of work under this contract. Such accounts shall be paid as they become due and payable. If requested by the District, the Contractor shall furnish proof of payment of such accounts to the District.

E. PERSONAL ATTENTION AND SUPERINTENDENCE:

1. The Contractor shall give personal attention to, and shall supervise the work to the end that it shall be faithfully prosecuted. A competent superintendent, who shall represent the Contractor during cases of absence, shall keep on the work throughout its progress and shall have complete authority to represent and act for the Contractor. Whenever the Contractor or the superintendent is not present on a particular 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 foreman or other representative who may have charge of the particular work in reference to which the orders are given, or the Engineer may stop the work until the Contractor or superintendent arrives.

2. The Contractor shall be liable for the faithful observation of any instructions. Any order given by the Engineer not otherwise required by the specifications to be in writing, will, on request of the Contractor, be given or confirmed by the Engineer in writing.
F. COOPERATION WITH ENGINEER:

1. The Contractor, when requested, shall assist the Engineer in obtaining access to work which is to be inspected. The Contractor shall provide the Engineer with information requested in connection with the inspection of the work.

G. CONTRACTOR NOT AN AGENT OF THE DISTRICT:

1. The right of general supervision shall not make the Contractor an agent of the District. The liability of the Contractor for all damages to persons or to public or private property, arising from the execution of the work, shall not be lessened because of such general supervision.

H. OVERLOADING:

1. The Contractor shall not overload any structure or roadway beyond its design load capacity during construction. In addition to assuming full responsibility for bodily injury resulting from any such overloading, the Contractor shall repair to the Engineer's satisfaction or reimburse the District for the costs of repairing damage resulting therefrom. The Contractor shall submit load data to the Engineer upon request.

I. THIRD PARTY CLAIMS:

1. The Contractor shall be responsible for all third party claims and for costs or injuries incurred by a third party which result from the operations of the Contractor.

J. RESPONSIBILITY FOR ACCURACY:

1. The Contractor shall obtain all necessary measurements for and from the work, and shall check dimensions, elevations, and grades for all layout and construction work and shall supervise such work, the accuracy for all of which the Contractor shall be responsible. The Contractor shall adjust, correct and coordinate work with that of subcontractors and others so that no discrepancies will result.

K. PROHIBITED ACTIVITIES:

1. Firearms, fireworks, explosives, or alcoholic beverages are not permitted on District facilities. Pets and animals are also prohibited. These items may not be kept in vehicles which are operated or parked on District property.

L. MOTOR VEHICLES:

1. Individuals and motor vehicles operated at the SRWTP shall comply with the Vehicle Code of the State of California. All roadways shall be considered public thoroughfares and the posted signs shall be observed.
2.05 DISTRICT-CONTRACTOR COORDINATION

A. LEGAL ADDRESS OF THE CONTRACTOR:

1. Both the address given in the Bid and the Contractor's office in the vicinity of the work are hereby designated as places to which plans, letters, notices, or other articles or communications to the Contractor may be mailed or delivered. The mailing or delivery at either of these places shall be deemed sufficient notice thereof, upon the Contractor. Nothing herein contained shall be deemed to preclude the service of any plan, letter, notice, article, or communication to or upon the Contractor or representative personally.

B. SUGGESTIONS TO CONTRACTOR:

1. Any plan or method suggested to the Contractor by the Engineer or an inspector, but not specified or required, if adopted or followed in whole or in part, shall be used at the risk and responsibility of the Contractor; and the District and the Engineer will assume no responsibility therefor.

C. COOPERATION WITH OTHERS:

1. It is likely that the District, utility companies, and other contractors will be working within or adjacent to the area of the Work. The Contractor shall cooperate and coordinate with these other forces to avoid or minimize delays and interferences. The Contractor does not have exclusive use of the work area. Conflicts shall be referred to the Resident Engineer for resolution.

2. The Contractor shall be responsible for any expenses, damages or delays to others as a result of failure to cooperate.

D. DIFFERING SITE CONDITIONS:

1. The Contractor shall promptly, and before such conditions are disturbed, notify the District in writing of:

   a. Subsurface or latent physical conditions at the site differing materially from those indicated in this contract.

   b. Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this contract.

2. The Engineer shall promptly investigate the conditions. If such conditions do materially differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of the Work whether or not changed as a result of such conditions, an equitable adjustment will be made and the contract modified in writing accordingly. The equitable adjustment will be made in accordance with the CONTRACT MODIFICATION PROCEDURES Section (01 26 00).
3. No claim of the Contractor under this clause shall be allowed unless the Contractor has given the notice required, except that the District may extend the prescribed time.

4. No claim by the Contractor for an equitable adjustment shall be allowed if asserted after final payment.

E. RECEIPT OF CONTRACTOR’S PLAN:

1. The receipt by the Engineer of any drawing or any method of work proposed by the Contractor shall not relieve the Contractor of responsibility for any errors therein, and shall not be regarded as any assumption of risk or liability by the District or any officers or employees thereof, and the Contractor shall have no claim under this contract on account of the failure or partial failure or inefficiency of any plan or method so received. Such receipt shall mean merely that the Engineer has no objections to the Contractor using the plan or method so proposed. Four copies of the information requested below shall be submitted for information only in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

a. EXCAVATION: The Contractor shall submit for information only to the Engineer 5 days in advance of any excavation of trenches and structural excavations with a depth greater than 5 feet an engineered system which is a detail plan of shoring, bracing, sloping, or other provisions to protect workers from the hazards of caving ground or flooding during the operations. All plans for excavation shall be prepared and signed by a California registered civil or structural engineer. A signed copy of the Engineered System must be on the site at the time of the work. In no case shall the protective system be less effective than that required by the Construction Safety Orders of the Division of Industrial Safety of the California Department of Industrial Relations.

b. The above in no way relieves the Contractor from the requirements of the HEALTH AND SAFETY REQUIREMENTS Section (00 73 19).

2. EXISTING STRUCTURE ISOLATION:

a. The Contractor shall submit to the Engineer 5 days in advance of any existing structure isolation that requires construction of bracing, bulkheads or cofferdams, an engineered system which is a detail plan of the bracing, bulkhead or cofferdam or other provisions to protect the workers from the hazards of flooding during the operations. All plans for construction of temporary bracing, bulkheads or cofferdams shall be prepared and signed by a California registered civil or structural engineer. A signed copy of the engineered system must be on the site at the time of the work. In no case shall the protective system be less effective than that required by the Construction Safety Orders of the Division of Industrial Safety.
PART 3 -- SPECIFICATIONS AND DRAWINGS

3.01 INTENT OF PLANS AND SPECIFICATIONS

A. GENERAL:

1. It is the intent of the Contract that the Work shall result in a complete, reliable and satisfactory operating system that functions as planned and designed. The plans and specifications are complementary and shall be used together to determine intent or objective.

2. No additional compensation will be provided for anything not shown but reasonably necessary or required for the proper functioning of the unit, facility or system.

3. The prices in the Bidding Schedule shall be considered full compensation for providing all labor, materials, equipment, tools and incidentals necessary to complete the Work as required by the Contract.

B. CLARIFICATION OF CONTRACT DOCUMENTS:

1. Should it appear that the work to be done, or any of the matters relative thereto, are not sufficiently detailed or explained on the drawings or in the specifications, or in the event of any doubt or question arising respecting the true meaning of the specifications, the Contractor shall apply to the Engineer for further explanations.

3.02 DIVISION OF SPECIFICATIONS AND DRAWINGS

A. Specifications and plans are divided into groups for the convenience of the District, Engineer, and Resident Engineer. These Sections are not for the purpose of apportioning work or responsibility among subcontractors, suppliers and manufacturers.

3.03 DISCREPANCIES IN SPECIFICATIONS AND PLANS

A. The specifications and the drawings are intended to be explanatory of each other. Any work shown on the contract drawings and not in the specifications, or vice versa, is to be executed as if indicated in both.

B. In case of conflict, Division 0 (Procurement and Contracting Requirements), including these General Conditions, shall govern over all. Division 1 shall govern over Divisions 2 through 50, which shall govern over the contract drawings. The contract drawings shall govern over the Sacramento County Standard Specifications. The Contractor shall comply with the provisions of the INSTRUCTIONS TO BIDDERS Section (00 21 13) prior to bid regarding any conflict during the bid period. Any conflict the Contractor becomes aware of during the conduct of the work shall be brought to the attention of the Engineer. All work shown on the drawings, the dimensions of which are not figured, shall be accurately followed to the scale to which the drawings are made; however, figured dimensions are in all cases to be followed, though they differ from scaled measurements.
C. Any work for which there are no provisions in the specifications or on the drawings shall be performed in accordance with the provisions of the State Specifications.

3.04 PRESERVATION OF PROPERTY

A. Roadside trees and shrubbery that are not to be removed, and pole lines, fences, signs, traffic control devices, survey markers and monuments, buildings, and structures, conduits, under or above ground pipelines, and any other improvements and facilities adjacent to the work shall be protected from injury or damage, and if ordered by the Engineer, the Contractor shall provide and install suitable safeguards to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored to a condition as good as when the Contractor entered upon the work, and all expenses of whatever nature arising from such damage shall be borne by the Contractor. Before the Contractor removes any road sign or permanent traffic control device which interferes with the work, approval is required from the Engineer.

3.05 EXISTING UTILITIES

A. It is recognized by the District and the Contractor that the location of existing utility facilities as shown on contract drawings and specifications are approximate; their exact location is unknown.

B. Recognition is given to the fact there may be additional utilities existing on the property unknown to either party to the contract. Location of utilities as shown on the plans and specifications represent the best information obtainable from utility maps and other information furnished by the various agencies involved. The District warrants neither the accuracy nor the extent of actual installations as shown on the drawings and specifications.

C. The Contractor agrees and is required to coordinate and fully cooperate with the District and utility owners for the location, relocation, and protection of utilities. The Contractor shall submit an Access Request prior to excavating on the site. The contractor is responsible to pothole all utilities shown on the contract drawings at all excavations, trench crossings or other earth disturbing activities a minimum of 48 hours in advance of the performance of said work at no additional cost. Potholing of utilities not shown on the contract drawings will be compensated for in accordance with the CONTRACT MODIFICATION PROCEDURES Section (01 26 00) if so directed by the Engineer.

D. In accordance with Section 4215 of the Government Code of the State of California, the District shall make provisions to compensate the Contractor for the costs of locating, repairing damage not due to the failure of the Contractor to exercise reasonable care, and removing or relocating such main and trunk line utility facilities not indicated in the plans and specifications with reasonable accuracy, and for equipment on the project necessarily idled during such work. Compensation will be in accordance with the CONTRACT MODIFICATION PROCEDURES Section (01 26 00).
E. In the event the Contractor discovers utilities not identified in the plans or specifications, the Contractor shall immediately notify the Engineer and the utility owner by the most expeditious means available and later confirm in writing.

F. The County of Sacramento is a member of the Underground Service Alert (U.S.A.) one-call program. The Contractor or any subcontractor shall notify U.S.A. two (2) business days in advance of excavation work by calling 800-642-2444 or 811.

G. Each phase of the project must be called to U.S.A. and continuing excavation reported every 14 calendar days, as the markings are not permanent and will fade out. The U.S.A. will designate a U.S.A. number which must be available to the inspector at the job site along with the date it was called in. If the U.S.A. notifications are not kept up to date, the excavation may be stopped and a new U.S.A. notice required before continuing the excavation.

H. Contractor will be required to utilize white paint to outline known areas of excavation prior to calling U.S.A. This paint shall be white dots located inside the excavated area so that when construction is completed there will be no remnants of the paint. At those locations where the excavation is not known, the excavator shall make an attempt to identify the areas that will be excavated. All utility companies and contractors will be required to use the following color codes and symbols for the identification of facilities:

**Color Codes and Symbols**

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I. The utility shall have the sole discretion to perform repairs or relocation work, or permit the Contractor to do such repairs or relocation work.

J. Unless otherwise indicated on the drawings or in the specifications, the Contractor shall maintain in service all drainage, water, gas, and sewer lines, including house services,
power, lighting, and telephone conduits, and any other surface or subsurface structure of any nature that may be affected by the Work.

K. Unless otherwise indicated in the specifications, the Contractor shall be responsible for protecting all existing utilities. The utility owner in these cases may elect to provide the necessary protective measures and bill the Contractor for the cost. Existing utilities shall further include traffic control devices, conduits, street lights, and related appurtenances.

3.06 CONFORMANCE WITH CODES AND REGULATIONS

A. All work and materials shall be in full accordance with the latest adopted standards and regulations of the State Fire Marshal; the Uniform Building Code; Title 24 of the California Administrative Code; the National Electrical Code; the Uniform Plumbing Code; National Fire Protection Act; and other applicable codes, laws or regulations. Nothing in these plans or specifications is to be construed to permit work not conforming to these requirements. When the work detailed in the plans and specifications differs from governing codes, the Contractor shall furnish and install the higher standard. The Contractor shall notify the Engineer whenever a possible code violation is discovered in the Work. If the higher standard so required is more expensive than the work detailed in the plans and specifications, the Contractor will be compensated for the additional costs.

3.07 PLANS AND SPECIFICATIONS

A. A complete set of the contract drawings and specifications revised to include all addenda issued during the contract bid period will be provided to the Contractor on electronic media. One complete hard copy set of drawings and specifications shall be available at the site of the Work at all times. Contractor and/or subcontractors are responsible for producing hard copy sets of drawings and specifications for their use if so desired.

3.08 WORKING DRAWINGS AND SUPPLEMENTAL DRAWINGS

A. In addition to the plans incorporated in the contract at the time of signing, the Engineer may furnish such working drawings and supplemental drawings from time to time as may be necessary to make clear, or to define in greater detail, the intent of the drawings and specifications. In furnishing such additional drawings and instructions, the Engineer shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the nature of the work. These working drawings and supplemental drawings shall become a part of the contract documents.

PART 4 -- MATERIAL, EQUIPMENT AND WORKMANSHIP

4.01 MATERIALS AND TESTS

A. All materials shall be new and of a quality equal to that specified. Whenever the quality or kind of material or article is not particularly specified, the materials or articles shall
be of the best grade in quality and workmanship. Materials to be used in the work will be subject to inspection and tests by the Engineer. The Contractor shall furnish without charge such samples as may be required. The Contractor shall furnish the Engineer a list of sources for materials and the locations at which such materials will be available for inspection. The list shall be submitted to the Engineer in sufficient time to permit inspecting and testing in advance of their use. The list shall include type of material, specification section, source of supply, address and phone number of supplies and purchase order number.

4.02 EQUIPMENT AND METHODS

A. Only equipment and methods suitable to produce the quality of work required will be permitted on the project. If any part of the Contractor's plant, equipment, or methods of execution of the work appear to the Engineer to be unsafe, inefficient, or inadequate to insure the required quality or rate of progress of the work, the Contractor may be ordered to increase or improve the facilities or methods. However, neither compliance with such orders nor failure of the Engineer to issue such orders shall relieve the Contractor from the obligation to secure the degree of safety, the quality of work, or rate of progress required.

4.03 MATERIAL AND EQUIPMENT SPECIFIED BY NAME AND INSTALLATION

A. GENERAL:

1. When any material or equipment is indicated or specified by patent or proprietary name or by the name and catalog number of two or more manufacturers, it shall be considered as used for convenience in describing the material or equipment desired. The use of an alternative material or equipment which is of equal quality, operability, maintenance history, and reliability, and of the required characteristics for the purpose intended may be permitted. Requests for such post bid substitutions shall be made in writing by the Contractor and submitted in accordance with the SUBMITTAL PROCEDURES Section (01 33 00) with ample time to permit approval without delaying the work. Until and unless such substitutions are approved by the District Representative, no deviations from the specifications shall be allowed. The burden of proof as to the quality and suitability of the alternative shall be upon the Contractor. The District Representative shall be the sole judge as to the quality and suitability of alternative materials or equipment.

B. SINGLE SOURCE PRODUCTS:

1. If material or equipment is specified by only one patent or proprietary name, or by the name of only one manufacturer, it is for the purpose of standardization or because the District knows of no equal. If standardization is the reason for using one name to specify any material or equipment, the specification will so state, and substitutions will not be considered. In other cases, the Contractor may offer substitutions of products considered to be equal to that specified in accordance with paragraph 4.03A above.
C. PREQUALIFIED VENDORS:

1. If material or equipment is specified by vendors or manufacturers, only the listed sources shall be used and substitutions will not be considered.

D. INSTALLATION TO SUIT SUPPLIED EQUIPMENT:

1. The arrangement of equipment shown on the drawings is based upon information available to the District at the time of design and is not intended to show exact dimensions peculiar to a specific manufacturer. The drawings are diagrammatic and some features of the illustrated equipment may require revision to meet actual equipment installation requirements. Structural supports, foundations, connected piping, valves, and electrical conduit specified may have to be altered to accommodate the equipment provided. As-built drawings and O&M submittals must reflect field-installed equipment, conditions, and related information. No additional payment will be made for revisions and alterations.

2. All mechanical, electrical, and instrumentation equipment shall be installed in conformity with the details specified and with the manufacturer's requirements. Should a manufacturer's installation recommendations conflict with requirements of the Contract, the Contractor shall bring the matter to the attention of the Engineer. Costs incurred to accommodate named manufacturer's installation recommendations will be reviewed for an equitable adjustment. Any additional costs incurred arising out of changes to accommodate substitution manufacturer's installation recommendations shall be the responsibility of the Contractor.

3. The Contractor shall notify the Engineer if change is needed to meet the requirements of named or substitution supplied equipment. This notification should occur as part of the equipment submittal process. The District will revise the contract documents at no additional cost to the Contractor. If the revision does not require a change order, the revised contract documents will be provided to the Contractor as part of the equipment submittal, normally within 45 days of notification. The Contractor shall notify the Engineer in writing within 20 days of receipt of the revised contract documents of the acceptance of the revision.

4.04 DEMONSTRATION OF COMPLIANCE WITH CONTRACT REQUIREMENTS

A. INSPECTION:

1. To demonstrate compliance with the contract requirements, the Contractor shall assist the Engineer with inspection. The Contractor shall grant the Engineer access to the work and to the places where work is being prepared, or where materials, equipment or machinery are being supplied. The Contractor shall provide information requested by the Engineer in connection with inspection work.

2. If the contract documents, laws, ordinances, or any public regulatory authority require parts of the work to be specially inspected, tested or approved, the Contractor
shall give the Resident Engineer adequate prior written notice of the availability of the work for examination.

3. The Contractor shall provide written notification 48 hours ahead of work requiring inspection. If parts of the work are covered prior to the Resident Engineer getting adequate prior written notice of the availability of the subject work for examination, the cost of exposing the work for inspection and closing shall be borne by the Contractor regardless of whether or not the work is in compliance with the Contract.

4. If any work is covered in the absence of the Engineer's directive to the contrary, the Contractor shall, if directed by the Engineer, uncover, expose or otherwise make available for inspection, portions of covered work. If it is found that such work is defective, the Contractor shall bear the costs for uncovering and reconstructing. If the work is found to be in compliance with the Contract, the Contractor will be compensated.

5. If any equipment is installed or operated in the absence of the Engineer or the Engineer has reason to believe that damage has occurred, the Contractor shall remove and disassemble the equipment for inspection. If it is found that the work is defective or damaged, the Contractor shall bear the expense of removal, repair, and reinstallation. If no defective work or damage is found, the Contractor will be compensated.

B. PROOF OF COMPLIANCE WITH CONTRACT:

1. In order that the Engineer may determine compliance with requirements of the contract not readily enforceable through inspection and tests of materials or work, the Contractor shall, at any time when requested, submit to the Engineer documents or other proof of compliance with the requirements.

C. PLANT INSPECTION:

1. The Engineer may inspect the production of materials or manufacture of products at the source of supply. Plant inspection, however, will not be undertaken until the Engineer is assured of the cooperation and assistance of the Contractor and the material producer. The Engineer shall have free entry at all times to such parts of the plant as concerns the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection and tests.

2. The District assumes no obligation to inspect materials at the source of supply. The responsibility for providing satisfactory materials is the Contractor’s.

3. Materials shall be furnished in ample quantities and at such times as to assure uninterrupted progress of the work. Materials, supplies, and equipment shall be properly stored and protected. The Contractor shall be responsible for damage or loss by weather or other causes.
D. EFFECT OF INSPECTION OR USE:

1. Neither the inspection, nor any measurement, approved modification, order or certificate, nor acceptance of any part or whole of the work or payment of money, nor any possession or use by the District or its agents, shall waiver any provisions of the contract or of any power or authority reserved therein, or to any right to damages thereunder; nor shall the waiver of any breach of this contract be held to be a waiver of any subsequent or other breach.

4.05 PROTECTION OF MATERIALS AND EQUIPMENT

A. Materials and equipment shall be protected in accordance with the PRODUCT DELIVERY REQUIREMENTS Section (01 65 00).

4.06 MANUFACTURER

A. Manufactured articles, material and equipment shall be stored, applied, installed, connected, erected, adjusted, tested, operated and maintained as recommended by the manufacturer, unless otherwise specified. Manufacturer's installation instructions and procedures shall be submitted in accordance with the SUBMITTAL PROCEDURES Section (01 33 00) prior to installation of the manufactured articles, material and equipment.

4.07 DEFECTIVE WORK

A. REMOVAL OF REJECTED MATERIALS OR WORK:

1. The Contractor shall, without delay, remove from the site of the work, all rejected or defective materials. No such rejected or defective materials shall be used in any work under this contract. All work which has been rejected shall be remedied, removed and replaced at the expense of the Contractor.

2. Upon failure of the Contractor to comply within 48 hours with any written order of the Engineer, or to make satisfactory progress, the District may cause the rejected materials to be removed, or the rejected work to be remedied, or removed and replaced, and deduct the costs from any sums due the Contractor.

B. RETENTION OF DEFECTIVE WORK:

1. Prior to acceptance of the project, the District may, at its option, retain work which is not in compliance with the contract if the District determines that such defective work is not of sufficient magnitude or importance to make the work dangerous or undesirable. The District also may retain defective work, if, in the opinion of the Engineer, removal of such work is impractical or will create conditions which are dangerous or undesirable. A just and reasonable value for such defective work shall be determined by the District and appropriate deductions shall be made in the payments due the Contractor. Final acceptance shall not act as a waiver of the
District's right to recover from the Contractor an amount representing the deduction for retention of defective work.

4.08 GUARANTEE

A. Should failure of the work occur within a period of one year or longer, as required in the Contract documents, after acceptance of the project, or portions thereof by the District, which can be attributed to faulty materials, poor workmanship, or defective equipment, the needed repairs shall be performed promptly at the Contractor's expense including but not limited to disconnection, shipping, repair and reinstallation.

B. The Contractor shall provide guarantee statements in the form provided to guarantee various segments of the work for the length of time specified.

C. The Contractor is alerted that equipment and materials installed under this Contract will be used by the District during the testing periods. In addition to the one year guarantee, the Contractor shall provide an extended warranty during the District's use prior to acceptance.

D. If the Contractor fails to complete the aforesaid repairs within 10 days after receipt of written notice, the District will make repairs at the Contractor's expense without further notice and without any notice to the surety. However, in case of emergency where, in the opinion of the Engineer, delay would cause serious loss or damages, or a serious hazard to the public, the repairs may be made or lights, signs, and barricades erected, without prior notice to the Contractor or surety, and the Contractor shall pay the costs thereof.

4.09 PROPERTY RIGHTS IN MATERIALS

A. Nothing in this contract shall be construed as vesting in the Contractor any right of property in the materials used, after they have been installed, attached, or affixed to the work, but all such materials shall be the property of the Contractor and the District jointly as their interests may appear, and cannot be removed from the work without the consent of the Engineer.

4.10 QUALITY IN THE ABSENCE OF DETAILED SPECIFICATIONS

A. Where the contract requires that materials or equipment be provided or that construction work be performed, and detailed specifications of such materials, equipment or construction work are not set forth, the Contractor shall perform the work using materials and equipment of a quality comparable to the materials and workmanship specified for the other parts of the work and at least equal to the general standard of quality found within the existing work and shall follow best practices in the performance of construction work. The work performed shall be in conformity and harmony with the intent to secure the best documentation, standard of construction, and equipment of work as a whole and in part.
PART 5 -- PROGRESS AND COMPLETION

5.01 PRECONSTRUCTION CONFERENCE

A. Prior to start of construction, a conference will be held for the purpose of reviewing the construction program.

5.02 BEGINNING OF WORK

A. The return of the executed contract, together with the prescribed bonds and certifications of insurance, and when required, advance on incidental expenses and acquisitions, shall constitute authority for the Contractor to enter upon the site of the work and to begin operations. Should the Contractor start work in advance of receiving notice that the contract has been executed for the District, however, any work performed in advance of the date of approval shall be at the Contractor's own risk. Should the Contractor desire to begin work prior to the execution of the Contract, the Contractor shall furnish to the Engineer insurance certificates. When work has started, the Contractor shall diligently prosecute the work to completion within the Contract Time.

B. The Contractor shall give the Engineer at least 5 working days’ notice of the intention to start work, indicating the intended beginning time, date, and location.

C. The counting of Contract Time shall begin the date of receipt of notification that the Contract has been executed for the District. Such notification will be sent by certified mail and shall be deemed to be the Notice to Proceed. In no event shall there be a period of time greater than 30 days (exclusive of such time as all completed documents are in the possession of the District) from the time the contract forms are received by the Contractor and the commencement of the Contract Time, regardless of the receipt of signed documents and/or completion of provisions regarding required bonds and certificates.

5.03 TIME OF COMPLETION AND DELAYS

A. TIME OF COMPLETION:

1. Time is of the essence on this contract. The Contractor shall complete all work called for under the contract within the times set forth in the CONTRACT TIME Section (01 14 20).

2. For the purposes of determining completion of the Work within the specified times, the Engineer will furnish the Contractor a weekly statement showing the number of working days charged to the contract for the preceding week and the number of working days charged to date for each Work Item with a completion time. The Contractor will be allowed 15 calendar days to file a written protest of the working day statement, otherwise the counting of working days shall be deemed accepted by the Contractor.
B. UNFAVORABLE WEATHER AND OTHER CONDITIONS:

1. During unfavorable weather and other conditions, the Contractor shall pursue only portions of the work that will not be damaged. No portions of the work whose satisfactory quality or efficiency will be affected by any unfavorable conditions shall be constructed while these conditions remain, unless, by special means or precautions approved by the Engineer, the Contractor shall be able to overcome them. Costs associated with implementation of any such special means or precautions shall be paid by the Contractor.

C. DELAYS:

1. NOTICE OF DELAYS:

   a. Whenever the Contractor foresees any delay in the prosecution of the work, and in any event within 24 hours of the occurrence of any delay which is regarded as an unavoidable delay, the Contractor shall notify the Engineer in writing of the probability of the occurrence of such delay and its cause, in order that the Engineer may take steps to prevent the occurrence or continuance of the delay, and may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the work are to be delayed.

   b. After the completion of any part or the whole of the work, the Engineer, in estimating the amount of time extensions and compensation, if any, due the Contractor, will assume that any and all delays which have occurred have been avoidable delays, except such delays as shall have been called to the attention of the Engineer at the time of their occurrence and found to have been unavoidable. The Contractor will make no claims that any delay not called to the attention of the Engineer at the time of its occurrence has been an unavoidable delay.

2. AVOIDABLE DELAYS:

   a. Avoidable delays in the prosecution of the work shall include delays which could have been avoided by the exercise of care, prudence, foresight and diligence on the part of the Contractor or subcontractors. Avoidable delays include, but are not limited to, the following:

      1) Delays which may in themselves be unavoidable but which affect only a portion of the work and do not necessarily prevent or delay the prosecution of controlling items of work nor the completion of the whole work within the Contract Time.

      2) Time associated with the reasonable interference of other contractors employed by the District which do not necessarily prevent the completion of the whole work within the Contract Time.
3. UNAVOIDABLE DELAYS:

   a. The Contractor will be granted an extension of time for delays which the Engineer has determined resulted from causes beyond the control of the Contractor and which could not have provided for by the exercise of care, prudence, foresight, and diligence.

   b. Unavoidable delays shall be those caused by acts or neglect of the District which could not have been reasonably anticipated by the Contractor; by acts of God or of the public enemy, fire, floods, epidemics, or strikes. Material shortages and delays in utility company relocations may be classified as an unavoidable delay if the Contractor can produce satisfactory evidence of having acted in a timely manner. Any curtailment of the Contractor's operations due to the action of the Air Pollution Control Board not related to Contractor’s action or inaction shall be considered an unavoidable delay. Actions by the Air Pollution Control Board as a result of Contractor’s actions or inactions will be considered an avoidable delay.

   c. Delays in the prosecution of parts of the work which may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of controlling items of work nor the completion of the whole work within the time specified will not be considered as unavoidable delays. Reasonable loss of time resulting from the necessity of submitting plans for approval of the Engineer, from the making of surveys, measurements, inspections by the Engineer or from interference by other contractors which does not necessarily prevent the completion of the whole work within the time herein specified, will not be considered as unavoidable delays.

D. EXTENSION OF TIME:

   1. The Contractor shall be allowed an extension of time for unavoidable delays, plus any adjustments of Contract Time due to change orders. Applications for an extension of time must be made in writing before the expiration of the times fixed in the Contract for the completion of Work Items specified in the CONTRACT TIME Section (01 14 20), or of the time granted by extension.

   2. Where the time for completion for a Work Item is specified as a date, rather than working days, the Contractor may not be allowed an extension of time to complete the Work Item. In such cases, the District will consider payment of costs associated with acceleration of the work.

   a. AVOIDABLE DELAYS:

      1) In case the work is not completed in the time specified, including extension of time as may have been granted for unavoidable delays, the Contractor will be assessed liquidated damages.
b. UNAVOIDABLE DELAYS:

1) For delays which the Contractor considers to be unavoidable, complete information demonstrating the effect of the delay on the controlling operation in the Construction Schedule shall be submitted to the Engineer. The submission shall be made within 30 calendar days of the occurrence which is the cause of the unavoidable delay. The Engineer shall review the Contractor's submission and determine the number of days of unavoidable delay and the effect of such unavoidable delay on controlling operations. The District agrees to grant an extension of time to the extent that unavoidable delays affect controlling operations. The Contractor will be granted a time extension as a result of inclement weather as provided for in Part 3 of the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16).

2) It is understood and agreed by the Contractor and District that time extensions due to unavoidable delays will be granted only if such unavoidable delay involves controlling operations which would prevent completion of the Work Items within the Contract Times.

c. EFFECT OF EXTENSION OF TIME:

1) The granting of an extension of time for the completion of the Work on account of delays which are unavoidable delays, or which are granted for extra or additional work, shall in no way operate as a waiver on the part of the District of any of its rights under this contract.

E. COMPENSATION FOR DELAYS:

1. AVOIDABLE DELAYS--NO COMPENSATION: The Contractor shall not receive any additional compensation for avoidable delays.

2. UNAVOIDABLE DELAYS--NO COMPENSATION: The Contractor shall not receive any additional compensation due to inclement weather or conditions resulting therefrom; by acts of God or of the public enemy, fire, floods, epidemics, strikes, material shortages or due to action of the Air Pollution Control Board not attributed to Contractor actions or inactions.

3. UNAVOIDABLE DELAYS--COMPENSATION: The Contractor shall be entitled to additional compensation for unavoidable delays which the Engineer has determined resulted from an act or neglect of the District, or as a result of the discovery of cultural resources as specified in the PERIOD TREATMENT PROCEDURES Section (01 35 91) except as modified below:

   a. Compensation for unavoidable delays shall not be granted when the delay could have been reasonably anticipated by the Contractor.
b. When two or more concurrent delays occur with at least one or more being noncompensable, no compensation other than time extension shall be provided.

c. Compensation for unavoidable delays shall be granted only if such unavoidable delay affects controlling operations which would prevent completion of the Work.

4. DAMAGES FOR DELAY: For the period of time that any portion of the work remains unfinished after the time fixed for completion of any Work Item or Contract Milestone as specified in the CONTRACT TIME Section (01 14 20), as modified by extensions of time, it is understood and agreed that liquidated damages are due.

5.04 TEMPORARY SUSPENSION OF WORK

A. The Engineer shall have the authority to suspend the work wholly or in part, for such period as deemed necessary due to unsuitable weather or for any other conditions considered unfavorable for the prosecution of the work; or for such time as deemed necessary due to the failure of the Contractor to carry out orders or to perform any provisions of the Contract. The Contractor shall immediately comply with written order of the Engineer. The suspended work shall be resumed only when conditions are favorable or methods are corrected as ordered or approved in writing by the Engineer.

B. If the Engineer orders a suspension of the work which is the current controlling operation due to unsuitable weather or to other conditions which are considered unfavorable to the prosecution of the work the days on which the suspension is in effect shall not be considered working days.

C. If a suspension of the work is ordered by the Engineer due to the failure of the Contractor to carry out orders or to perform any provisions of the Contract, the days on which the suspension order is in effect shall be considered working days. The Contractor shall not be entitled to damages or compensation due to suspension.

D. In case of suspension of work from any cause whatever, the Contractor shall be responsible for all materials and shall store them properly if necessary and shall provide suitable drainage and erect temporary structures where necessary.

5.05 TERMINATION OF CONTRACT

A. Whenever, in the opinion of the Board, the Contractor has failed to supply an adequate force of labor, equipment, or materials of proper quality, or has failed in any other respect to prosecute the work with diligence or should there be persistent or repeated refusal or failure to comply with laws, ordinances, or directions of the Engineer; or should there be consistent failure to make prompt payments to subcontractors, for labor or materials, the Board may give written notice of at least 5 calendar days to the Contractor and sureties that if the defaults are not remedied within a time specified in such notice, the Contractor's control over the work will be terminated.
B. If the Contractor should be adjudged bankrupt, or make an assignment for the benefit of creditors, or if a receiver should be appointed on account of insolvency, the Board may declare the Contractor's control over the work terminated, and so notify the Contractor and sureties.

C. Upon such termination, the Board may direct the Engineer to take possession of and use all or any part of the Contractor's materials, tools, equipment and appliances upon the premises to complete the work; the District assuming responsibility for the final relinquishment of such equipment at the conclusion of the work, or sooner, at its option, in as good condition as when it was taken over, reasonable wear and tear excepted, and the District agrees to pay for such materials and the use of said equipment a reasonable compensation to be mutually agreeable to the Board and the Contractor.

D. The Engineer may permit the surety to complete or cause the Work to be completed, or the Engineer may direct that all or any part of the work be completed by day labor, or by employment of other contractors. Such informal contracts may be awarded after a bid form has been prepared and a copy served upon the Contractor whose control has been terminated and upon the surety, and not less than 3 Calendar Days allowed thereafter, so that others may bid.

E. If the work is completed as provided above, the Contractor is not entitled to receive any portion of the amount to be paid under the Contract until it is fully completed. After completion, if the unpaid balance exceeds the sum of the amount expended by the District in finishing the work, plus all damages sustained or to be sustained by the District, plus any unpaid claims on account of labor, materials, tools, equipment, or supplies contracted for by the Contractor for the work herein contemplated, provided that sworn statements of said claims shall have been filed with the Board, the excess not otherwise required by these specifications to be retained shall be paid the Contractor. If the sum so expended exceeds the unpaid balance, the Contractor and surety are liable to the District for the amount of such excess. If the surety completes the Work, such surety shall be subrogated to money due under the Contract and to money which shall become due in the course of completion of the surety.

F. The District may, without prejudice to any other remedy it may have under the provisions of the Contract, terminate this Contract, in whole or in part, at any time by giving written notice to Contractor or its representative by certified mail, return receipt requested. Termination shall be effective upon receipt of notice by Contractor. Contractor shall immediately discontinue work and take all reasonable steps with its suppliers and subcontractors to minimize cancellation charges and other costs.

G. In the event of termination for reasons other than default of Contractor, Contractor shall be entitled to recover all reasonable costs incurred in connection with performance of the Work, plus any cost and expense reasonably and necessarily incurred in connection with such termination, plus a percentage of the profit based on the percentage of completion of the Work.
H. If the work is stopped by order of a court, a public authority or the District for a period of 90 Calendar Days or more through no act or fault of the Contractor, then the Contractor may terminate the Contract 10 Working Days after written notice to the District. Upon receipt of the written notice, the District shall terminate the contract.

5.06 SUBSTANTIAL COMPLETION

A. When the Contractor considers the entire Work, or a specific portion of the Work as defined by Work Item in the WORK RESTRICTIONS Section (01 14 00) and Contract Milestone in the CONTRACT TIME Section (01 14 20), substantially complete, the Contractor shall certify in writing to the District that the Work is substantially complete and request that the District grant substantial completion. Within five (5) Working Days, the District and the Contractor shall inspect the Work to determine the status of completion. If the District does not consider the entire Work, or a specific portion of the Work, substantially complete, the District will notify the Contractor in writing, giving the District’s reasons. If the District considers the entire Work, or a specific portion of the Work, substantially complete, the District will grant substantial completion. Unless otherwise specified in the Special Provisions, the entire Work, or a specific portion of the Work, will be considered substantially complete when all work depicted on the contract drawings and required by the Contract Documents has been performed. Only minor corrective work will be allowed to be considered as punch list work. The District will provide a list of items to be completed or corrected (punch list) before Field Inspection and Field Acceptance per paragraph 5.07 below. Within ten (10) Working Days of being provided a list of items to be completed or corrected, the Contractor shall proceed to correct or complete such items. The counting of time for liquidated damages will cease for the entire Work, or a specific portion of the Work, on the date substantial completion is granted, but shall not bind the District to Final Acceptance nor relieve the Contractor from the responsibility of completing or correcting any work. In order to achieve the Contract Milestones as defined in the CONTRACT TIME Section (01 14 20), the Contractor shall allow sufficient time for the District to determine the status of completion as defined above. The Liquidated Damages defined in the CONTRACT TIME Section (01 14 20) will apply up to the date Substantial Completion is granted by the District.

5.07 FIELD ACCEPTANCE

A. The Contractor shall notify the District in writing of the completion of the punch list per paragraph 5.06 above, and the District shall promptly inspect the Work. The Contractor or the Contractor's representative shall be present at the final inspection. The Contractor will be notified in writing of any defects or deficiencies. The Contractor shall proceed to correct such defects or deficiencies within ten (10) Working Days of such notification. When notified that correction of the defective or deficient work is complete, the District will again inspect the Work to ascertain that the corrections are in accordance with the Contract. The District will issue a Field Acceptance letter and will record a notice of completion with the County Recorder within ten (10) Working Days. All retention not withheld due to stop notices or disputed work will be released within 60 Calendar Days
of the recording of the notice of completion. Field Acceptance by the District shall cause the commencement of warranty periods, but shall not bind the Board to Final Acceptance nor relieve the Contractor from the responsibility of completing or correcting any work.

5.08 USE OF COMPLETED OR PARTIALLY COMPLETED PORTIONS OF THE WORK

A. The District shall have the right to take possession and use any completed or partially completed portions of the Work. Such possession and use shall not be deemed as substantial completion or acceptance. The District may exclude the Contractor from completing the work if construction activities might interfere with the operation or maintenance of the plant. The District may complete the work after giving the Contractor notice of intention to do so. If the District completes the work, the cost for such work will be charged to and deducted from amounts due to the Contractor. Division of responsibilities between District and Contractor, beginning of guarantee, and any other issues relating to field acceptance shall be as specified in this section.

5.09 DIGGING TRENCHES OR EXCAVATIONS; NOTICE ON DISCOVERY OF HAZARDOUS WASTE OR OTHER UNUSUAL CONDITIONS; INVESTIGATIONS; CHANGE ORDERS; EFFECT ON CONTRACT.

A. If this Contract involves digging trenches or other excavations that extend deeper than 4 feet below the surface, the following shall apply:

B. 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 hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

2. Subsurface or latent physical conditions at the site differing from those indicated.

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.

C. The District shall promptly investigate the conditions, and if it finds that the conditions do materially differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work shall issue a Field Instruction.

D. In the event that a dispute arises between the District and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of or time required for performance of the Work, the Contractor shall not be excused from any completion requirements, but shall proceed with all work.
The Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

E. The Contractor shall be responsible and liable for the handling, storage, testing, hauling, and disposal of hazardous waste generated as a result of the work. The Contractor shall not be considered the generator of pre-existing hazardous environmental substances that the Contractor did not introduce to the site. The District Representative shall sign any required manifests for such substances as the generator.

**END OF SECTION**
SECTION 00 73 19

HEALTH AND SAFETY REQUIREMENTS

1.01 GENERAL

A. All operations shall conform to applicable occupational safety and health standards, rules, regulations and orders which include, but are not limited to: Title 29 of the Code of Federal Regulations and the Electrical, Construction, Tunnel and General Industry Safety Orders issued by the Division of Industrial Safety (Cal/OSHA) of the State of California. In the event of a conflict between the requirements in the referenced standards, the most stringent standard shall prevail.

B. The Contractor shall submit their Injury and Illness Prevention Program (IIPP) for review.

C. All contractors, vendors and visitors will wear hardhats and safety vests at all times while in construction areas. In addition, if necessary, but not limited to: appropriate foot, eye and ear protection shall be worn.

D. Contractor shall have a Site Specific Safety Plan that has been specifically prepared for the contemplated work. Site Specific Safety Plan shall comply with section 3203 of Cal/OSHA and shall be applicable to all individuals engaged in the Work, including the Contractor’s subcontractors, suppliers and others.

E. An Emergency Action Plan and a Fire Prevention Plan in accordance with sections 3220 and 3221 respectively of Cal/OSHA shall be included in Site Specific Safety Plan.

F. The responsibility for safety rests with the Contractor who must provide a safe work site for workers and other individuals entering the area.

G. District reserves the right to stop any work activity that creates a serious safety violation as defined by Cal/OSHA,

H. In accordance with OSHA’s National Emphasis Program (NEP), any contractor or subcontractor working on or adjacent to chlorine, sulfur dioxide, and/or digester gas systems during a Process Safety Management (PSM) inspection will also be inspected by OSHA per CPL 02-09-06.

1.02 PROJECT SPECIFIC SAFETY PROGRAM

A. Project Specific Safety Program shall include:

1. Designation of Safety Manager. A resume shall be provided.

2. Detailed description of Site Specific Safety Plan.
3. Policies and procedures to ensure compliance with regulations.

4. Staffing plan and organization chart for implementation of the safety program.

5. Training program including new employee orientation.

6. List of equipment, supplies, materials and personal protective devices that will be available and utilized.

7. Description of accountability for foreman and supervisors.

8. Site Specific Emergency Response Plan for accidents/incidents and injuries.

9. Description of accident investigation and reporting procedures.

10. Description and frequency of tailgate and regular safety meetings.

11. Participation of subcontractors, suppliers and others in Project Safety Program.

12. Method of identifying, correcting, or remedying situations that are unsafe or not in compliance with Project Safety Program.

13. Plans and procedures for confined space entries.


16. Method to remedy nonconforming situations.

B. Project Specific Safety Program and revisions shall be reviewed by full time Safety Professional. The full time Safety Professional shall state that the Site Specific Project Safety Program is adequate and complies with the regulations applicable to the Work. The Project Specific Safety Program shall be submitted to the District Representative, for review, prior to commencement of work and shall remain in effect until the Work has been completed. Site Specific Safety Plan shall be reviewed, updated, and changes submitted as they occur.

1.03 SAFETY MANAGER

A. A Safety Manager shall be designated who has responsibility for safety of the Work and who has the duty to implement and secure compliance with the Site Specific Safety Plan. Safety Manager shall have the authority to remedy or correct any unsafe or noncompliance situations or problems.

B. Safety Manager or designated alternate individual shall be on site when Work is being pursued. Contractor will be permitted to designate an alternate individual to act on behalf of Safety Manager when Safety Manager is absent from the work site.
C. Safety Manager shall be knowledgeable of occupational health and safety rules and regulations.

D. Safety Manager shall prepare Work Permits for each confined space entry and shall organize and observe each entry.

1.04 PROTECTION OF WORKERS

A. The SRWTP receives sewage and industrial wastes. There is a possibility that solvents, fuels and hazardous material may be in the wastewater. The wastewater and the associated facilities should be considered contaminated. Individuals who contact wastewater, debris or existing facilities should take appropriate safety and health precautions such as personal protective equipment and inoculations for disease.

B. Safety equipment and precautions shall be utilized to protect workers, District personnel, and the general public during the work.

1.05 WORK PERMITS

A. There are areas and operations at the SRWTP which are potentially hazardous or dangerous if the appropriate precautions are not taken. The Work Permit process is utilized to review proposed work activities and to ensure good work practices and appropriate safety measures are followed. Contractor is required to prepare Work Permits and comply with the stipulated conditions. A Work Permit shall provide a detailed description of the proposed activities and sequencing.

B. The Work Permit procedure is described in the COORDINATION WITH OCCUPANTS Section (01 14 16). Examples of activities which require a Work Permit are:

1. Operations that have open flames, the potential for sparks or activities that may result in high temperatures. Examples include welding, cutting, grinding and electrical work.

2. The use of tools or electrical equipment in classified areas.

3. Work on equipment or piping which contains, or has contained, a flammable or hazardous material, chemical or gas. Work on or in proximity to chemical or gas storage facilities.

4. The use of hazardous materials.

5. Activities which involve electricity at greater than 500 volts.

6. Activities that involve pressures greater than 150 psi.

7. Activities that involve work in a confined space including the opening of vaults and manholes.
8. Activities that involve special precautions required by Cal/OSHA.

1.06 REPORTING

A. All incidents that are reportable on OSHA Form 300 or that result in property damage in excess of $1,000 shall be promptly reported to District. A detailed description of the incident including names and statements of witnesses shall be provided within 5 days of the occurrence.

B. Contractor shall inform the District within 5 days of any claims, suits, or citations of violations that may arise from an incident or injury.

1.07 NON COMPLIANCE

A. When a serious hazard is identified, the Contractor will receive a verbal notification of the problem and a request to rectify the situation. If the situation is not corrected in the allotted time or reoccurs, a written notification will be issued to the Contractor that will clearly describe the condition, date Contractor initially was notified, the recommended action and the expected date of compliance. If the situation is not corrected, the Contractor’s worker’s compensation insurance carrier will be notified.

**END OF SECTION**
SECTION 01 14 00

WORK RESTRICTIONS

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. The work may be subdivided into one or more work items. A work item shall be completed as a unit or subproject in accordance with the Contract. The required completion of a work item by a certain deadline may be necessary due to other construction constraints.

B. The details of each work item are in the specifications and on the drawings. The completion of a work item shall provide an operating system or facility that is substantially complete and available for utilization. All work shown on the plans and in the specifications is required, whether or not it is specifically addressed in the table of work items in this section.

C. The work items listed below describe phases of work and their respective requirements. Substantial completion of a work item includes successful completion of all testing. The Work Items and the Contractor Requirements are listed below in Table 1 and Table 2, respectively. Table 1 is itemized numerically and Table 2 is cross-referenced alphabetically. Likewise, Table 2 is itemized alphabetically and Table 1 is cross-referenced numerically.

D. The Contractor shall observe the following general requirements:

1. The District will drain existing piping, equipment or structures to the level of the lowest existing drain line. The depth of water remaining in a given pipe, equipment, or structure will vary depending on the distance of the drain from the leakage source. The District will remove any large deposits of solids; however, there may be a solids residue remaining on any surface. Any subsequent cleaning or further draining and/or dewatering shall be provided by the Contractor.

2. The Contractor shall provide all necessary temporary pumps, piping, electrical wiring, controls and labor during and subsequent to all shutdown activities as required. Pumps and upstream water levels shall be continuously monitored by the Contractor during all temporary pumping operations to insure against process upsets, flooding, and bypassing.

3. The Contractor shall maintain adequate access to the plant facilities, utilities, and equipment during construction to allow continued operation and maintenance by plant personnel to take place.
4. The Contractor shall coordinate all crafts and subcontractors to minimize the number and duration of shutdowns. Non-coordinated shutdowns that result in a cost of manpower or materials to the District shall be back-charged to the Contractor and will be deducted from progress payments.

5. The discharge point and rate of drainage and/or dewatering operations is subject to District approval.

6. All existing equipment and processes shall remain under control of the District. New equipment which has been connected to existing processes may be operated by the Contractor only with prior approval of the District.

7. Access requests are required in accordance with the COORDINATION WITH OCCUPANTS Section (01 14 16) for all activity that affects an existing facility or operation including testing and the movement of personnel and vehicles at the plant.
## 1.02 WORK ITEMS

### Table 1. Work Items

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Work Item Description</th>
<th>Contractor Requirement Cross Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No work activities shall begin until the District has approved the Water Pollution Control Plan (WPCP), WPCP measures have been installed, and Safety Plan has been approved.</td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>Mobilization, contractor office trailer sitting, and designation of laydown areas.</td>
<td>A</td>
</tr>
<tr>
<td>3</td>
<td>Use, closure, or restriction of access of any road by Contractor.</td>
<td>A, B</td>
</tr>
<tr>
<td>4</td>
<td>Construction of drilling and installing anodes.</td>
<td>A, D</td>
</tr>
<tr>
<td>5</td>
<td>Work for the Digester overflow lines will take place inside a manhole which is classified as a confined space entry.</td>
<td>A, E</td>
</tr>
<tr>
<td>6</td>
<td>Isolation for the WRH line near the MSG Compressor Building will need to be coordinated with District staff to switch the water supply from WRH to the WN line for process reasons.</td>
<td>A</td>
</tr>
<tr>
<td>7</td>
<td>Work on utility lines (Reclaimed Water and Non-Potable Water) around Digesters 8, 10 and 11.</td>
<td>A, F</td>
</tr>
<tr>
<td>8</td>
<td>Work on utility lines (Service Air, Reclaimed Water High Pressure and Reclaimed Water Low Pressure) for Secondary Sedimentation Tanks (SSTs) Battery III.</td>
<td>A, G, H</td>
</tr>
</tbody>
</table>

### Table 2. Contractor Requirements

<table>
<thead>
<tr>
<th>Requirement Number</th>
<th>Requirement</th>
<th>Work Item Cross Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Contractor shall have approved Access Requests (AR) prior to doing work for the different work areas. Depending on the work location, additional safety requirement will be needed and can include; atmospheric monitoring and preparation of a hot work plan.</td>
<td>2, 3, 4, 5, 6, 7, 8</td>
</tr>
<tr>
<td>B</td>
<td>Comply with restrictions on road use specified in Section 01 14 19. Access Request must address each road separately (using alpha designation in Section 01 14 19).</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Comply with requirements of Section 01 57 19 and 01 57 23.</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>Contractor is responsible for obtaining necessary</td>
<td>4</td>
</tr>
<tr>
<td>Requirement Number</td>
<td>Requirement</td>
<td>Work Item Cross Reference</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td></td>
<td>drilling permits for construction.</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Contractor is responsible for confined space ventilation, gas monitoring and suspension systems.</td>
<td>5</td>
</tr>
<tr>
<td>F</td>
<td>Utility line isolation shall only be permitted for one Digester at a time.</td>
<td>7</td>
</tr>
<tr>
<td>G</td>
<td>Utility line isolation shall only be permitted for two tanks at a time.</td>
<td>8</td>
</tr>
<tr>
<td>H</td>
<td>All work in Secondary Sedimentation Tanks (SSTs) Battery III must be coordinated with Contractor working on the RAS pumps installation project.</td>
<td>8</td>
</tr>
</tbody>
</table>

### 1.03 SCHEDULE CONSTRAINTS

A. As noted above, the Contractor may not proceed with Work Item No. 1 until the District authorizes such action.

**END OF SECTION**
SECTION 01 14 13

ACCESS TO SITE

1.01 PROJECT LOCATION

A. The work specified under this Contract will be performed at the Sacramento Regional Wastewater Treatment Plant (Plant). The Plant is located south of the Sacramento City limits, west of Franklin Boulevard and north of Sims Road at 8521 Laguna Station Road, Elk Grove, California 95758.

1.02 SITE ACCESS AND ACCESS ROADS

A. Access to the SRWTP site for construction related traffic (except as noted below) shall be via Sims Road, Laguna Station Road, and the main plant access gate.

1. Contractor shall access the site via Sims Road Gate for delivery access.

2. Contractor shall obtain District’s approval prior to accessing the site via Laguna Station Road.

B. Contractor is required to submit an Access Request (AR) for District approval prior to mobilizing any equipment or facilities onto the construction site in accordance with the COORDINATION WITH OCCUPANTS Section (01 14 16). Contractor’s AR for mobilization shall include but not limited to a site plan showing access routes, office location, sanitary facilities location, storage yard, parking areas, temporary construction fencing, and temporary walkways around construction site. Contractor shall coordinate with the District Representative prior to submitting the AR.

C. Contractor shall be aware that Dwight Road and other roads within the site will be utilized by other contractors and Plant personnel during the duration of this contract.

D. The Contractor’s personnel will be required to park personal vehicles in the approved or designated areas. Each Contractor shall be responsible for policing the common parking area for cleanliness and efficient parking procedures to ensure use by all. Existing parking in the process area may not be used by the Contractor’s workers.

E. The Contractor shall submit Daily Attendance Sheets in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26) within 1 hour of the start of shift to document who is on-site in the event of an evacuation. The Contractor will maintain a visitor log to document the arrival and departure of all delivery personnel and periodic visitors. In the event that a staff member leaves the site before end of shift, this action will be recorded in the Contractor’s visitor log.

F. In the event of an evacuation, the contractor and all staff, subcontractors, delivery personnel and visitors will report to the congregation area with copies of the attendance
sheets and visitor log for roll call. All personnel will remain at the congregation area until released by authorized District Management.

1.03 CONTRACTOR IDENTIFICATION BADGE POLICY AND PROCEDURES

A. IDENTIFICATION:

1. All Contractor and subcontractor staff assigned to work at the Plant shall obtain an identification badge and shall wear/display their badges at all times while at the Plant. The Contractor must submit to the District Representative a weekly list which includes scheduled deliveries to the job site and staff members who have received badges.

B. TRAINING:

1. All Contractor staff must attend Plant Safety Orientation and badge use training at a minimum prior to issuance of badges. Training is anticipated to be 3 hours total in duration and will include the environmental and cultural education training as described in the TEMPORARY ENVIRONMENTAL CONTROLS Section (01 57 19).

C. BADGE SECURITY LEVELS:

1. Contractors and subcontractors will have different access authority levels through process security gates depending upon the time of day, and/or their assigned duties.

2. If access is denied, contact the District Representative.

D. FORGOTTEN BADGE:

1. If a person forgets their badge, they will have to enter the Plant as a visitor. This requires logging in and out of the Plant by the security guard at the gate.

   a. Use the inside entry lane (closest to the guard station).

   b. Guard will ask your name and other information and allow entry.

   c. Guard will give you a visitor parking permit.

   d. Display it on your rear view mirror.

   e. Leave plant using inside exit lane (closest to guard station).

   f. Return parking permit to guard, then guard will allow exit.

E. LOST BADGE:
1. A badge categorized as forgotten will be considered lost after 72 hours. Lost badges shall be reported to the District Representative as soon as the loss is realized. A replacement badge will be issued and the lost badge will be deactivated and will no longer work in the security system. If found, the lost badge shall be turned into the District Representative.

1.04 MAIN GATE ENTRY/EXIT PROCEDURES

A. GENERAL:

1. Badges are required to enter or exit through the guard gate stations. No "piggy backing" of other vehicles is allowed.

2. There is one entrance and one exit lane at the Laguna Station Road Main gate:

a. The outside lane is exclusively for persons with badges.

b. The inner lane is to be used by

   1) Visitors;
   2) Deliveries; and
   3) Employees without badges

c. NOTE: If a person with a badge chooses the inner lanes, they may get behind someone that needs to be checked in or out extending the wait time in that lane.

**END OF SECTION**
SECTION 01 14 16

COORDINATION WITH OCCUPANTS

1.01 GENERAL

A. Contractor work activities that impact existing District operations, property or facilities (such as pipelines, ductbanks, manholes, treatment processes, environmental resources, and access roads to District facilities) require an approved, signed Access Request (AR) prior to commencement of work. Interruption of flow or connection to an existing system requires a Shutdown Plan and Location Map to be included with the Access Request. In addition to the Shutdown Plan, any activity that requires special safety precautions to be taken will require a Safety Work Plan to be included with the Access Request.

B. ACCESS REQUEST:

1. Allows District Operations time to review the proposed work and to schedule and coordinate necessary process or equipment shutdowns,

2. Allows District Safety office review of proposed work and contractors’ safe work practices related to the specific work to be performed,

3. Informs the contractor of any special hazards or exposures related to the specific work.

C. The District maintains permits to collect, treat and discharge wastewater. These permits establish discharge limits for wastewater, storm water, and air emissions and establish spill reporting requirements and fines. Violation of District permits shall not result from the Contractor’s work. Any unauthorized discharge or spill shall immediately be reported to the District’s Plant Control Center (916-875-9400). The District will require the Contractor to stop or restrict any activity that has or could result in an unauthorized discharge or permit violation. The District will prevent or remedy the situation by the most expeditious means. The Contractor will be responsible for all costs incurred including fines.
1.02 REQUIREMENTS

A. COORDINATION AND ACCESS:

1. Activities that affect the operation of existing District equipment, including Plant processes or access to District property will require coordination between District and Contractor.

2. Access Requests are generally required based on impending work activities discussed at weekly construction coordination meetings, and approval is issued jointly by the District O&M Support office and District Safety Office.

3. Unrestricted access for District personnel and equipment shall be provided at all times to existing facilities, unless a reduced level of access is explicitly allowed in the approved Access Request.

1.03 SCOPE

A. An Access Request provides notification of a Work Item or other activity proposed by the Contractor. An Access Request describes the contemplated work including when, where and how it will be accomplished. An Access Request shall be submitted by a qualified representative of the Contractor who is familiar with all aspects of the work and pertinent safety requirements. An Access Request may be required whenever any of the following conditions are contained in or will be affected by Contractor’s work:

1. General Project mobilization or District property access,

2. Work in, connection to, or removal of any pipeline, manhole, pump station, asset or wastewater process or equipment.

3. Any work that may impact environmental resources on District property,

4. Any work that may impact or disrupt other activities on District property such as leased agricultural operations, scientific studies, or concurrent construction projects,

5. Excavation on District property by location, dewatering of any excavation, structure, tank, vessel, or piping system

6. Installation or removal of bulkheads, cofferdams and isolation devices

B. Depending on the activities within the project, multiple Access Requests may be required.

C. A fully completed Access Request form shall be submitted in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26) at least 10 working days prior to the date proposed for commencement of work. An Access
Request meeting may be required prior to the approval of the work or upon the District’s request.

D. Contractors are required to describe the proposed work activity, indicate the property, system or equipment that will be affected, list the labor and equipment to be utilized, indicate the date, time and duration of the work, describe measures that will be implemented to reduce impacts to District property and facilities, and describe safety precautions to be observed. Drawing and section numbers shall be indicated where appropriate. A Shutdown plan shall be included with the Access Request when the work affects an existing system or process.

E. The Contractor shall plan and schedule Access Requests as early as possible. An Access Request will be reviewed and returned within 10 working days after submission of all necessary information. Sufficient information and detail shall be included with an Access Request to permit District to evaluate the proposed operation and the associated risks. Insufficient information on an Access Request may delay approval within 10 working days.

F. Contractor shall not be allowed to proceed with any work, or any portion of the work, described in an Access Request without complying with all the conditions, in their entirety, of the Access Request approval. All conditions of approval, including additional safety precautions added by the District Safety Office, shall be complied with and effectively communicated to Contractor's personnel and subcontractors. If the Contractor does not agree with the additional safety requirements, work shall not start until resolution is attained. Changes in the proposed activities or field conditions of an Access Request, or delay of the work, will require the submission of a new or revised Access Request.

1.04 SHUTDOWN PLAN

A. A Shutdown Plan shall be included with an Access Request whenever an existing operating system or facility such as a pipeline, basin, tank, channel, power supply, control circuit, instrumentation, equipment, pump, meter, or structure is affected. Shutdowns shall be planned and coordinated to minimize the number and duration of activities that affect existing operations.

B. The District will limit the duration of shutdowns for critical systems. Stated durations are the total time period between when the system is made available to Contractor and when it is ready for return to service. If the Contractor cannot complete the work within the allowed time, Contractor shall immediately request an extension from the District. If the District does not approve the requested extension, Contractor shall complete the work or return the system to operable condition. The District will complete the work if
Contractor does not return the system to operable condition as directed. Contractor is responsible for extra costs or damages incurred by the Contractor or the District to meet these requirements.

C. REQUIREMENTS:

1. Designate the equipment or system that will be affected or removed from service. Describe the work to be undertaken. Identify the portion of the system that will be isolated, dewatered, decommissioned, de-energized, depressurized, or drained.

2. List the labor, equipment, materials, tools, utilities and incidental items to be used.

3. Indicate measures to prevent discharge of wastewater, stormwater pollution, odor or disruption of treatment processes.

4. Indicate dewatering method and means for disposal of leakage water.

5. Provide details for bulkheads, cofferdams and isolation devices.

6. Describe safety precautions and equipment.

7. Describe recovery plan if the shutdown cannot be completed as planned

8. List activities to be done by the District.

9. Indicate the time estimated to complete the shutdown.

** END OF SECTION **
### SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT

# ACCESS REQUEST

<table>
<thead>
<tr>
<th>Prime Contractor</th>
<th>Contract #</th>
<th>Date</th>
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<tbody>
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<tr>
<th>Sub-Contractor</th>
<th>AR #</th>
<th>Revision</th>
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<thead>
<tr>
<th>Contact for Contractor</th>
<th>Work Item #</th>
<th>CPM Activity #</th>
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<thead>
<tr>
<th>Phone</th>
<th>□ Work Plan Attached</th>
<th>□ Drawing Attached</th>
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## PART 1 – CONTRACTOR WORK PERMIT

<table>
<thead>
<tr>
<th>Start Date/Time</th>
<th>Completion Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

### Reference Contract Drawings/Specifications

### Equipment or System to be Worked On

### Location of Work

Provide RMP/MOC no. for work affecting SRWTP Gas Mgmt. or Chemical Handling Areas:

### Type of Work (check all that apply)

- □ Civil
- □ Mechanical
- □ Electrical
- □ Instrumentation
- □ Process
- □ Coating
- □ Hotwork
- □ Other (specify)
- □ Mobilization
- □ Traffic/Ped. Access
- □ Shutdown

### Description of Work

________________________

________________________

________________________

### Anticipated Hazards

________________________

________________________

### Tools/Equipment to be Used

- □ Cutting/Welding Torches
- □ Arc Welders
- □ Jack Hammers
- □ Power Saws
- □ Grinders
- □ Pneumatic Tools
- □ Backhoe
- □ Crane
- □ Radioactive Test Device

## Revised 11-2015

Access Request Instructions

1. Contractor fills out AR with sufficient information to define the work and anticipated safety hazards and signs at bottom of page 2.
2. If it is a CIP - R.E. reviews AR and signs on page 3 prior to delivering AR to District Representative.
3. District Representative(s) reviews and approves the AR with conditions, restrictions, or additional Safety Items (all additional safety Items on page 2 will be initialed).
4. District Rep/RE gives approved AR back to contractor prior to contractor performing the work.
5. Contractor reviews AR conditions and Safety page prior to beginning work.

Note: For ARs for utility or outside agency work, contractor interacts directly with District Representative.
**PART 2 – CONTRACTOR SAFETY PRECAUTIONS**

All items checked will be complied with/used in accordance with applicable safety standards (CalOSHA, UFC, etc.) and the requesting contractor’s safety program.

<table>
<thead>
<tr>
<th>HOT WORK PLAN</th>
<th>REVIEW EMERGENCY PROCEDURES/ALARMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Isolate Combustibles</td>
<td>□ Chlorine/Sulfur Dioxide Areas</td>
</tr>
<tr>
<td>□ Fire watch</td>
<td>□ Oxygen Handling Areas</td>
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<tr>
<td>□ Fire Extinguishers</td>
<td>□ Gas Management Areas</td>
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<td>□ Flash Protection</td>
<td>□ Other</td>
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<thead>
<tr>
<th>AIR MONITORING</th>
<th>HOUSEKEEPING</th>
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<tbody>
<tr>
<td>□ Continuous</td>
<td>□ Debris Removal</td>
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<tr>
<td>□ Periodic</td>
<td>□ Dust Control</td>
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<tr>
<td>□ Frequency</td>
<td>□ Maintain access to/through worksite</td>
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<table>
<thead>
<tr>
<th>POTENTIAL ATMOSPHERIC HAZARDS TO BE MONITORED</th>
<th>EXCAVATION/TRENCHES</th>
</tr>
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<tbody>
<tr>
<td>□ Oxygen Deficiency</td>
<td>□ Shoring</td>
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<tr>
<td>□ Oxygen Enrichment</td>
<td>□ Sloping</td>
</tr>
<tr>
<td>□ Combustible Gases</td>
<td>□ Benching</td>
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<tr>
<td>□ Toxic Gases</td>
<td>□ Barricades</td>
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<td>□ Other</td>
<td>□ Excavation Plan Submittal Number</td>
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<tr>
<th>HAZARDOUS MATERIALS TRAINING</th>
<th>ELEVATED AREAS</th>
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<tr>
<td>□ Substance(s)</td>
<td>□ Fall Protection</td>
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<tr>
<th>ENERGY CONTROL PROCEDURES</th>
<th>PIPING/EQUIPMENT OPENING AND/OR ENTRY</th>
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<tbody>
<tr>
<td>□ Lockout</td>
<td>(ensure prior to opening)</td>
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<tr>
<td>□ Blockout</td>
<td>□ Effectively Isolated</td>
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<tr>
<td>□ Tagout</td>
<td>□ Depressurized</td>
</tr>
<tr>
<td></td>
<td>□ Drained</td>
</tr>
<tr>
<td></td>
<td>□ Purged/Flushed of Hazardous Substance(s)</td>
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</table>

<table>
<thead>
<tr>
<th>VENTILATION</th>
<th>ABATEMENT ACTIVITIES (Title 8, Construction Safety Orders)</th>
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</thead>
<tbody>
<tr>
<td>□ Natural only</td>
<td>□ Asbestos (Article 4 § 1529)</td>
</tr>
<tr>
<td>□ Auxiliary, continuous</td>
<td>□ Lead (Article 4 § 1532.1)</td>
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<thead>
<tr>
<th>CONFINED SPACE PROCEDURES</th>
<th>OTHER SAFETY PRECAUTIONS</th>
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<tr>
<td>□ Permit Required</td>
<td>□ Personnel Retrieval System</td>
</tr>
<tr>
<td>□ Non-permit</td>
<td>□ Communication w/ Entrant</td>
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<tr>
<td>□ C-5</td>
<td>□ Rescue Personnel @ site</td>
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<tr>
<td>□ Entry Permit @ site</td>
<td>□ Supplied Air</td>
</tr>
</tbody>
</table>

**AR SUBMITTAL SIGNATURE BLOCK**

Contractor signs below after page 1 and 2 are filled out with sufficient detail to allow AR to be reviewed. Contractor identifies all anticipated safety items prior to signing below. Safety Office staff will initial next to any additional safety items that have been checked off during the AR review process.

Contractor Representative

Date

Revised 11-2015
The work described by this Access Request has been reviewed. The work methods described and identified in Parts 1 & 2, and the additional safety precautions identified in Parts 2 & 3 will be complied with and effectively communicated to personnel assigned this task. If the contractor does not agree with additional safety precautions, work shall not start until resolution is attained.

Contractor Representative

Distribution:
- Operation Support
- Safety Office Representative
- Resident Engineer
- Contractor (supplied by RE)
- O&M Manager 1 (2)
- Process Team Leader
- Other ____________________
- Electrical Supervisor
- Facility Maintenance
- Project Engineer

*Note – Provide copies of approved ARs to applicable sections, always include O&M Manager 1’s in the distribution.

Access Request – Page 3 of 3

Revised 11-2015
SECTION 01 14 19

USE OF SITE

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. The District's operating personnel will be responsible for operating the existing treatment plant throughout the execution of this contract. Do not adjust or operate serviceable or functioning equipment or systems.

B. Equipment presently installed in the treatment plant must be safely available to plant personnel at all times for use, maintenance, and repair.

C. If it is necessary in the course of operating the plant for the Contractor to move its equipment, materials, or any material included in the work, it shall be done promptly. The equipment or material shall be placed in an area which does not interfere with the plant operation.

D. Requirements of this section include, but are not limited to, requirements specified in the COORDINATION WITH OCCUPANTS Specification Section (01 14 16) and the TEMPORARY UTILITIES Specification Section (01 51 00).

E. The existing treatment plant will remain in operation throughout the execution of this contract. Schedule and conduct work to minimize necessary shutdowns and interference with normal plant operations and maintenance. An Access Request Form included and described in the COORDINATION WITH OCCUPANTS Specification Section (01 14 16) shall be submitted to the District Representative each time access to existing facilities is necessary.

F. Comply with the safety requirements of the Sacramento Regional Wastewater Treatment Plant (Plant) Safety Manual as a minimum when working in the Plant process area. Provide additional safety considerations which are deemed necessary to protect Contractor and District employees during the conduct of the work.

G. Provide notice to the District Representative, in accordance with the COORDINATION WITH OCCUPANTS Specification Section (01 14 16), 2 weeks prior to taking out of service any existing tank, pipeline, channel, electrical circuit, equipment or structure. Provide whatever temporary piping, pumping, power, and control facilities as required to maintain continuous plant operation and complete treatment except as otherwise specified. The integrity of existing plant utilities shall be maintained at all times.
H. The Contractor's work force shall not use existing washrooms during the conduct of the work. Use of existing utilities shall be in accordance with the TEMPORARY UTILITIES Specification Section (01 51 00). The Contractor shall be responsible for keeping areas in the existing treatment plant where work is done clean and safely accessible for the District's operating personnel.

**END OF SECTION**
SECTION 01 14 20

CONTRACT TIME

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. District will issue Notice to Proceed within 21 days of RFB award. Contract Time commences at receipt by Contractor of Notice to Proceed in accordance with the GENERAL CONDITIONS Section (00 72 00).

B. The completion date for the Contract shall be the date of receipt by Contractor of Notice to Proceed plus the Contract Time in working days plus the non-working days listed below.

1.02 CONTRACT MILESTONES

A. The WORK RESTRICTIONS Section (01 14 00) describes Work Items. The following contract milestones must be included in the approved baseline schedule. All work necessary to meet these milestones must be completed to the satisfaction of the District or liquidated damages will be applied as described below. Contract Milestones shall meet the requirements of Substantial Completion by the date specified.

<table>
<thead>
<tr>
<th>Contract Milestone</th>
<th>Completion Time</th>
<th>Liquidated Damages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Contract Time</td>
<td>120 Working Days</td>
<td>$500/day</td>
</tr>
</tbody>
</table>

1.03 LIQUIDATED DAMAGES

A. Time is of the essence. Damages and expenses will be sustained by District if the Work is not completed within the Contract Time or by the Contract Milestone Completion Date listed in the table above. It is agreed that the liquidated damages are reasonable compensation to District if the Work or Work Items are not completed within the specified times. Liquidated damages are additive and cumulative for each day that the Work or Work Item is not completed.

B. Liquidated damages will be assessed against payments due under Contract.
1.04 WORKING DAYS

A. A working day is any day after Notice to Proceed except:

1. Saturday, Sunday and holidays listed below. However, weekends, holidays, and week nights may be worked as described in the GENERAL CONDITIONS Section (00 72 00).

2. Days specifically designated in Contract for cessation of Work.

3. Days that Work is suspended by District.

4. Inclement weather days as described in the CONSTRUCTION PROGRESS SCHEDULE Section (01 32 16).

1.05 HOLIDAYS

A. The following days are holidays (note that the District may observe the holiday on a preceding or subsequent business day):

<table>
<thead>
<tr>
<th>DAY</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Year’s Day</td>
<td>January First</td>
</tr>
<tr>
<td>Dr. Martin Luther King, Jr. Day</td>
<td>Third Monday in January</td>
</tr>
<tr>
<td>Lincoln’s Birthday</td>
<td>February Twelfth</td>
</tr>
<tr>
<td>George Washington’s Birthday Obs</td>
<td>Third Monday in February</td>
</tr>
<tr>
<td>Caesar Chavez Day</td>
<td>March Thirty-first</td>
</tr>
<tr>
<td>Memorial Day</td>
<td>Last Monday in May</td>
</tr>
<tr>
<td>Independence Day</td>
<td>July Fourth</td>
</tr>
<tr>
<td>Labor Day</td>
<td>First Monday in September</td>
</tr>
<tr>
<td>Columbus Day</td>
<td>Second Monday in October</td>
</tr>
<tr>
<td>Veterans Day</td>
<td>November Eleventh</td>
</tr>
<tr>
<td>Thanksgiving Day</td>
<td>Fourth Thursday in November</td>
</tr>
<tr>
<td>Thanksgiving Friday</td>
<td>Friday after Thanksgiving Day</td>
</tr>
<tr>
<td>Christmas</td>
<td>December Twenty-fifth</td>
</tr>
</tbody>
</table>

**END OF SECTION**
SECTION 01 26 00

CONTRACT MODIFICATIONS PROCEDURES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. The District may require changes to the Work. Changes will be directed by Field Orders (also known as Field Instructions) issued by the District Representative. A Field Instruction will describe:

1. The nature of the change,
2. The work to be done,
3. Changes in Contract Time, and
4. Adjustments to the Total Bid Amount.

B. Field Instructions will be incorporated into change orders to be executed by the Contractor and submitted to the District Engineer for approval prior to payment.

C. Work required by Field Instruction shall be in accordance with the Contract except for the specific change delineated in the Field Instruction.

D. Whenever corrections, alterations, or modifications of the Work are required by the District Representative and increase the amount of work to be done, such additional work shall be extra work. When corrections, alterations, or modifications decrease the amount of work to be done, it shall be deleted work.

E. Following are the requirements for Field Instructions, preparing cost proposals and evaluating cost proposals for extra work and deleted work.

1.02 CHANGES IN CONTRACT PRICE

A. The District Representative may issue a Field Instruction at any time during the course of the Work. The Contractor shall comply with the requirements of the Field Instruction. Drawings which are included with Field Instructions shall be part of the Contract and shall be incorporated into the As-Built documents.

B. Field Instructions may require extra work or deleted work. Within 10 days of receipt of a Field Instruction, the Contractor shall provide a cost and time proposal. If a request for additional time to prepare a proposal is not received within 5 days, the Contractor shall perform the work in accordance with the Field Instruction with no additional compensation or time.

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C. The Contractor shall delete work when required by Field Instruction.

D. An equitable adjustment will be provided for the cost of a change. The adjustment shall be determined by one of the following methods:

1. Unit prices listed in the Bid Form.
2. Agreed upon unit prices.
3. Lump sum.
4. Force account.

E. The Contractor shall submit an itemized breakdown with supporting data of the quantities of work and quantities of costs of direct craft labor, construction equipment and materials used in computing the cost of a change. This requirement pertains to extra work, deleted work or a combination of both. Deleted work shall be estimated and priced on the same basis as extra work.

F. The prices agreed upon and any agreed upon adjustment in Contract Time shall be incorporated in a Field Instruction which shall be written so as to indicate an acceptance by the Contractor as evidenced by signature. By signing the Field Instruction, the Contractor acknowledges that the adjustments to cost and time are full satisfaction and accord, payment in full, and so waives any right to claim any further cost and time impacts at any time during and after completion of the Contract.

G. Whenever the Contractor is requested to prepare an estimate for work and if the work is not performed, the Contractor shall be entitled to reasonable costs incurred in the preparation of the estimate.

H. In the event the District Representative and the Contractor fail to reach agreement on the price for work described in a Field Instruction, the District shall have the right to direct the Contractor to proceed with the work with payment by force account.

I. If the Contractor refuses to accept a change order, the District may unilaterally issue the change order and incorporate it into the Work without the concurrence of the Contractor. The Contractor shall comply with the change order. The District will provide an equitable adjustment to the Total Bid Amount. If the Contractor does not agree that the payment is equitable, a claim may be submitted in accordance with the DISPUTE RESOLUTION Section (00 73 83).

1.03 UNIT PRICE AND LUMP SUM PAYMENT

A. Under Methods 2 and 3 described above, the Contractor shall submit substantiating documentation with an itemized breakdown of Contractor and subcontractor direct costs, including direct craft labor, material, construction equipment, and approved services, pertaining to such ordered work in the form and detail acceptable to the District
Representative. The direct costs shall include only costs as described in this specification section.

1.04 FORCE ACCOUNT PAYMENT

A. GENERAL:

1. The Contractor shall keep an accurate account of the cost of work which is not part of the Contract. The Contractor will be paid for direct craft labor, materials and construction equipment actually used during the performance of the extra or directed work as described below. The Contractor shall use the District's Daily Work Report in preparing billings for force account work.

2. In order to facilitate agreement on direct craft labor hours, on construction equipment hours, and on material quantities, the Contractor shall notify the District Representative not less than 4 hours prior to starting force account work. The Contractor shall submit Daily Work Reports to the District Representative for signature not later than 9 am the day after the force account work is performed. Daily Work Report shall list names of all Contractor’s staff, the craft or trade employed as, all craft or trade labor hours, all material, and all construction equipment used that day.

3. Daily Work Reports shall be fully priced-out and submitted to the District Representative.

B. DIRECT COST CATEGORIES:

1. The categories described below are defined to be direct costs. No other type of costs will be allowable as a direct cost. Direct costs shall not include any labor costs pertaining to the Contractor’s and subcontractor’s managers or superintendents, their office and engineering staffs and office facilities, or anyone not directly employed on such work, nor the cost of their offices, facilities, vehicles and small tools and supplies. All such items are considered indirect costs which form a part of the Contractor’s and subcontractor’s overhead expense.

2. DIRECT CRAFT LABOR: The Contractor will be paid the cost of direct craft labor including foremen, when authorized by the District Representative, used in the actual and direct performance of the work. Except as otherwise provided, the Contractor shall receive no additional compensation for wage premiums resulting from overtime work performed under force account without the prior written authorization from the District Representative.

   a. The cost of direct craft labor, whether the employer is the Contractor, subcontractor, or other forces, will be the sum of the following:
1) ACTUAL WAGES: The actual wages paid shall include any employer payments to or on behalf of the workers for health and welfare, pension, vacation, and similar purposes.

2) LABOR SURCHARGE: The actual labor surcharge costs for: state and federal taxes, workers compensation insurance, and other payments made on or on behalf of the worker shall be added to actual wages.

3) SUBSISTENCE AND TRAVEL ALLOWANCE: The actual subsistence and travel allowance paid to workers.

3. MATERIALS: The actual cost of the materials to the purchaser, whether the Contractor, a subcontractor, or other forces. If the Contractor does not furnish satisfactory evidence of the cost of such materials, it shall be deemed to be the lowest current price at which the materials are available in the quantities delivered. The District reserves the right to furnish such materials as it deems advisable, and the Contractor shall have no claims for costs or profit on such materials.

4. CONSTRUCTION EQUIPMENT: The use of construction equipment whether on site or moved on site exclusively for extra work shall be paid for at the rates listed in the current compilation of rental rates of the State of California, Department of Transportation applicable to Sacramento County. If the construction equipment is not shown on the above mentioned list, the Contractor shall be paid the reasonable hourly rental rates that are agreed upon by the Contractor and the District Representative prior to use of the equipment plus 33-1/3% for fuel, oil, lubrication, repairs and maintenance. In no case shall the agreed hourly rate exceed the rental rates of established distributors or equipment rental agencies serving the area or the reasonable invoice cost for the equipment rental from outside the Contractor’s or subcontractor’s organization. Individual items of construction equipment or small tools which cost $500 or less shall not be charged to force account work unless it can be demonstrated that the particular item is needed solely for the completion of the force account work.

a. If the construction equipment is moved on to the site and used exclusively for extra work, the Contractor will be paid for the cost of transporting it to the site and returning it to its original location. The rental period shall begin when the equipment is unloaded at the site of the extra work, and shall include each day that the equipment is at the site of such extra work, excluding Saturdays, Sundays, and legal holidays, unless extra work is performed on such days, and shall terminate at the end of the day on which such extra work is completed or the District Representative directs the Contractor to discontinue the use of such equipment. Compensation for idle time for construction equipment moved on to the site exclusively for extra work shall be made in accordance with this specification section.

b. The rental time for construction equipment already on the site, or which is used for other than such extra work shall be the actual time the construction equipment
is in operation on the extra work, plus the time required to move the construction
equipment to the site of the extra work and return it to its original location.

1.05 MARKUPS

A. The Contractor shall be entitled to compensation for indirect and overhead costs, bond
and insurance costs and profit for Field Instruction work. This compensation shall be in
the form of markup percentages applied to the direct cost of the work as described below.

B. If a Field Instruction involves both extra and deleted work which is also referred to as
net extra work, the markups shall be applied to the cost of the net extra work. The
Contractor shall not be entitled to indirect and overhead costs or profits on the deleted
work.

C. For Field Instructions involving forward priced extra work or net extra work, the
following maximum percentage markups shall be applied to the total direct costs for each
cost category. These markups provide for all indirect and overhead costs and profit:

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Markup Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Craft Labor</td>
<td>20 percent</td>
</tr>
<tr>
<td>Materials - New Vendors/Suppliers</td>
<td>15 percent</td>
</tr>
<tr>
<td>Materials - Existing Vendors/Suppliers</td>
<td>5 percent</td>
</tr>
<tr>
<td>Construction Equipment</td>
<td>15 percent</td>
</tr>
</tbody>
</table>

D. For Field Instructions involving force account work, the following maximum percentage
markups shall be applied to the total costs for each cost category. These markups provide
for all indirect and overhead costs and profit.

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Markup Percentage</th>
</tr>
</thead>
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<td>15 percent</td>
</tr>
<tr>
<td>Materials - Existing Vendors/Suppliers</td>
<td>5 percent</td>
</tr>
<tr>
<td>Construction Equipment</td>
<td>15 percent</td>
</tr>
</tbody>
</table>

E. Existing vendors and suppliers shall be defined as vendors and suppliers that have an
existing contract, purchase order or other agreement for other Contract related work with
the Contractor or existing subcontractors.

F. A maximum markup of 2 percent shall be added to the sum of direct craft labor,
materials, construction equipment, profit, overhead and indirect cost markups for bond
costs and insurance costs including any insurance which may be allocable as a direct cost
within the Contractor's accounting system.

G. For Field Instruction work performed by a subcontractor, compensation for shall be
based on all direct costs of the subcontractor plus the above direct craft labor, materials,
construction equipment, and markup percentages. The Contractor may add a maximum
of 5 percent to the subcontractor's cost for profit, overhead and indirect costs and a maximum of 2 percent for bond and insurance.

H. The total indirect and overhead cost and profit markup for forward priced extra work or net extra work shall not exceed 20 percent of the direct cost of the work. The total indirect and overhead cost and profit markup for force account work shall not exceed 15 percent of the direct cost of the work. Direct cost is the summation of the Contractor’s direct costs and all subcontractors’ and suppliers direct costs prior to application of any markups. Distribution of the markup amount among the Contractor and subcontractors and suppliers shall be determined by the Contractor.

I. For deleted work a minimum of 8 percent shall be added to the sum of direct craft labor, materials and construction equipment as a deduction for indirect and overhead costs and profit. Reduced bond and insurance costs of 2 percent shall also be deducted from the sum of deleted work and deducted markup.

J. The allowances for profit, overhead and indirect costs shall include full compensation for any and all items of overhead and indirect items including but not limited to superintendence, consumable small tools and supplies, safety, insurance, as-built documentation, operation and maintenance manual documentation, cost proposal preparation, schedule analysis and preparation and all other office expenses.

1.06 COST PRICING DATA AND ACCESS TO RECORDS

A. All cost and pricing data submitted by the Contractor with respect to any change, prospective or executed, or any claim for extra compensation shall be a true, complete, accurate and current representation of actual cost and pricing of the work. The District Representative may require a certification as to cost and pricing data submitted by the Contractor.

B. The District Representative shall have access, upon reasonable notice during normal business hours, to any books, documents, accounting records, papers, project correspondence, project files, scheduling information and other relevant records of the Contractor and all subcontractors directly or indirectly pertinent to the Work and the Contract for the purpose of making audit, examination, excerpts and transcriptions and in order to verify or evaluate any change, prospective or executed, or any claim for which compensation has been requested or notice of potential claim has been submitted.

C. All books, documents, and other records mentioned above shall include, but are not limited to those necessary to determine the amount of direct and indirect costs, job site, area and home office overhead and delay and impact costs, however characterized, and shall include the original bid and all documents related to the bid and its preparation, as well as the schedule and related documents.

D. This access shall include the right to examine and audit records and make excerpts, transcriptions, and photocopies.
1.07 DISPUTE REGARDING CONTRACT REQUIREMENTS

A. If the Contractor and District fail to agree whether or not any work or other matter is within the scope of the Contract, the Contractor shall nevertheless immediately perform such work upon receipt of a written Field Instruction or other written directive. Within 10 working days after receipt of the Field Instruction or other written directive, the Contractor may submit a written protest detailing the Contract requirements exceeded and the appropriate cost and/or time change. Failure to submit a protest within the specified period constitutes a waiver of the Contractor’s rights to adjustments in the Total Contract Price and/or Contract Time for the disputed Contract requirement.

B. The Contractor shall not stop performing the Work pending resolution of a dispute, unless ordered in writing by the District.

C. If the District agrees with the Contractor’s written protest, the Total Contract Price and/or Contract Time will be adjusted through a Contract Change Order. Protests and claims denied by the District will be so stated in writing.

1.08 CONSTRUCTION INCENTIVE CHANGE PROPOSAL

A. GENERAL:

1. The Construction Incentive Change Proposal (CICP) program provides a mechanism by which the Contractor can be motivated to use construction expertise to improve contract performance and thereby create an overall reduction in the total cost of the contract. The Contractor and subcontractors may participate in the CICP program; however, participation of the subcontractors shall be through the Contractor. In addition, the sharing arrangement between the Contractor and subcontractor must be mutually agreed upon and written evidence of such agreement will be provided with the submittal of a CICP.

2. A CICP will not be considered for proposed changes that delete work or make modifications to work that are considered to be extra, net extra or deleted work. These types of deletions or modifications often occur and shall be administered in accordance with this section. The District Representative will determine if a proposed change qualifies as a CICP.

3. While a CICP is being considered or processed, the Contractor shall continue to pursue the Work.

B. DESCRIPTION:

1. A CICP is a formally written proposal for a change to the Contract. A CICP must be initiated, developed, and identified by the Contractor. A CICP must result in a net capital cost reduction while causing no increase in the total life cycle cost and shall comply with the following requirements:
a. Required function, reliability and safety will be maintained without detracting from the life expectancy and without increasing maintenance requirements.

b. The proposed change will not delay the Work, nor delay the completion of the project.

c. The proposed change shall be in compliance with all local permits and regulations and code requirements.

d. The proposed change shall not involve payment of royalties by the District.

2. A CICP must produce a net savings of at least $50,000 before it will be considered by the District. A CICP which produces a net savings less than $50,000 will be considered a deductive change in the Work.

C. SUBMITTALS:

1. Submittals shall be in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

2. A synopsis of the proposed CICP shall be submitted. The District will review the CICP and will request a detailed proposal if the CICP has merit and potential savings.

3. CICP submittal must contain the following information:

   a. Name of individuals associated with the development and preparation of the CICP.

   b. A description of the CICP with plans and specifications showing the present design and the proposed changes. All advantages and disadvantages shall be identified.

   c. A detailed procedure and schedule for implementing the proposed change with all necessary contract amendments. Also indicated must be the latest date that the CICP can be approved for implementation.

   d. A summary of estimated costs which shall include the following:

      1) Project costs before and after the CICP. This shall be a detailed estimate identifying the following items for each craft involved in the CICP:

         a) Quantities of material and equipment.
         b) Unit prices of materials and equipment.
         c) Labor hours and rates for installation.
         d) Subcontractor and prime contractor markups.

      2) Operation and maintenance costs before and after the CICP.

      3) Cost for implementing the CICP not included in item above.
4) Contractor's share of the savings.

5) Other data required for permits, regulations and code requirements.

6) Time required for acceptance of the proposed change.

e. A copy of the current schedule showing all changes which would occur if the CICP was accepted.

4. District will not be responsible for the Contractor’s cost to develop the CICP if it is rejected. If the CICP is not acted upon within the time frame indicated by the Contractor, the CICP shall be considered to have been rejected by the District.

D. ACCEPTANCE:

1. If a CICP is accepted by the District, a Field Instruction will be issued. If the CICP is rejected, the Contractor may not appeal the decision.

E. SHARING PROVISIONS:

1. CONSTRUCTION SAVINGS SHARING: Upon acceptance of the CICP, the Contractor will share the net capital savings pursuant to this contract based on the following formula:

   \[ \text{Net Savings} = \text{Contract Cost Prior to CICP} - (\text{Revised Contract Cost after CICP} + \text{CICP Development Cost} + \text{CICP Implementation Cost}) \]

2. The cost for developing the CICP is limited to the costs directly associated with the submittal and will be reimbursed to the Contractor.

3. The CICP implementation costs will include the District’s costs for review and redesign. However, costs for processing the CICP by the District are excluded.

F. SHARING FORMULA:

1. The Contractor will receive 50 percent of the net savings based on the computation above. Payment will be made at the time that the original construction would have been completed.

1.09 VARIATION IN QUANTITIES FOR UNIT PRICE BID ITEMS

A. GENERAL:

1. Increases or decreases in the quantity of a unit price item will be determined by comparing the total pay quantity for the item with the quantity in the Bid Form.

2. If the total pay quantity of an item varies from the Bid Form quantity by 25 percent or less, payment will be made at the contract unit price.
3. If the total pay quantity of any item varies from the Bid Form quantity by more than 25 percent, in the absence of a Field Instruction specifying the compensation to be paid, the compensation payable to the Contractor will be determined in accordance with the following:

B. INCREASES GREATER THAN 25 PERCENT:

1. Payment for the quantity in excess of 125 percent will be paid at an adjusted unit price or by force account.

2. The adjusted unit price for quantities in excess of 125 percent will be the actual unit cost for the item up to 125 percent of the Bid Form quantity. Fixed costs for the item will be deducted from the actual unit costs.

3. The District may elect to pay for items in excess of 125 percent of the Bid Form quantity at the price in the Bid Form if the total amount is $5,000 or less.

4. An appropriate adjustment in contract time will also be provided if the increased quantity delays completion of the Work.

C. DECREASES GREATER 25 PERCENT:

1. An equitable adjustment of the unit price will be made if the quantity of an item is less than 75 percent of the Bid Form quantity and a price adjust is requested by the Contractor.

D. ELIMINATED ITEMS

1. Should any Work be eliminated in its entirety, in the absence of a Field Instruction covering such elimination, payment will be made to the Contractor for actual costs incurred in connection with such eliminated contract item if incurred prior to notification from the District Representative.

2. If acceptable material is ordered by the Contractor for the eliminated item prior to notification, and if orders for the material cannot be canceled, it will be paid for at the actual cost plus a 5 percent mark-up. The material shall become the property of the District.

3. If the material is returned to the vendor, the Contractor will be paid the actual costs including handling.

1.10 COMPENSATION FOR DELAYS

A. CONSTRUCTION EQUIPMENT:

1. Compensation for idle construction equipment shall be made for those allowable delay periods provided that the equipment remains on site for a duration beyond which is indicated on the schedule. Compensation may be provided for the idle
construction equipment used exclusively for Field Instruction work. Compensation shall be determined in accordance with the current rental rates of the Department of Transportation of the State of California which are applicable to the County of Sacramento with the following exceptions:

a. The right-of-way delay factor for each classification of equipment shown in the Department of Transportation publication entitled “Labor Surcharge Equipment Rental Rates” of the State of California will be applied to the rental rate.

b. Compensation will be provided for the actual time during which a delay exists, but not more than 8 hours per day.

c. Compensation will be provided for each day or portion of a day excluding Saturdays, Sundays and holidays for the duration of the delay. Weekly or monthly rates shall apply if the duration of the delay is extended.

B. JOBSITE INDIRECT AND OVERHEAD COSTS:

1. For allowable delays as described in the GENERAL CONDITIONS Section (00 72 00), compensation to the Contractor for indirect and overhead costs shall be limited to the following:

a. Actual payroll costs for field office staff incurred as a result of the delay including: management, supervision, estimating, engineering, drafting, clerical, secretarial and accounting including all taxes, insurance, fringe benefits and any and all other payments made to or on the behalf of the employee, including workers compensation insurance, shall be added to the payroll costs.

b. Actual cost for third-party services provided for the field office such as: management, supervision, estimating, engineering, drafting, clerical, secretarial and accounting utilized in lieu of employees.

c. Field office expenses for rent and utilities which are applicable and substantiated by invoice.

2. Compensation for: on-site plant, incidentals, utilities, and facilities for non-field office personnel including branch office and home office personnel will not be provided. Compensation for these items and other incidental shall be considered to be included in the markups.

C. MARKUPS FOR DELAYS:

1. For idle equipment a maximum of 5 percent shall be added for profit, bond, and insurance costs.

2. For jobsite indirect and overhead costs a maximum of 10 percent shall be added for home office and branch office indirect and overhead costs.
3. To the total costs calculated above, a maximum of 5 percent shall be added for profit, bond, and insurance costs.

4. Distribution of the above markups among the Contractor and subcontractors and suppliers shall be determined by the Contractor.

D. DUPLICATED OVERHEAD COSTS:

1. In the event that the Contractor is compensated for delay periods as described above, and the delay was attributable to direct cost changes to which markups were added, equitable adjustments shall be made to eliminate the duplication of compensation for indirect and overhead costs and profit.

**END OF SECTION**
SECTION 01 26 13
REQUEST FOR INTERPRETATION

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Contractor shall prepare a Request for Interpretation (RFI) when additional information, clarification or interpretation of the Contract Documents is needed. RFIs may also be used for apparent conflicts, inconsistencies, ambiguities, or omissions. “Request for Interpretation” and “Request for Information” shall have the same meaning.

B. RFIs shall be submitted to the District Representative sufficiently in advance of the work to permit time for investigation and preparation of a response. Any work undertaken prior to receipt of a RFI response shall be at the risk of Contractor.

C. RFIs generated during submittal and shop drawing preparation must be submitted by the Contractor sufficiently in advance to not only allow for investigation and preparation of a response, but also for inclusion of the response into the submittal and shop drawing. Failure by the Contractor to provide sufficient time will not be cause for entitlement to a time extension.

D. RFIs shall not be used for submittals or for substitute of material, equipment or for waiving of requirements.

1.02 SUBMITTAL

A. RFIs shall be submitted via the District-furnished, web-based, document control system in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26). Each RFI shall deal with only one topic, item, issue or system.

B. RFIs shall clearly describe the problem and specifically state what is needed. Relevant portions of the Contract Documents shall be cited, marked-up and attached.

C. The Contractor shall review each RFI before submitting and compare it with the Contract Documents to verify that a response is required. RFIs will only be accepted from the Contractor and not from subcontractors or suppliers.

D. A recommendation or proposed solution may be included when appropriate or expedient.

E. Known schedule or cost impacts shall be noted in the RFI.
1.03 RESPONSE

A. The District Representative will normally respond within 10 days. The Contractor shall indicate a priority for responses if more than five (5) RFIs are pending at the same time.

B. The Contractor shall reply within 10 days if there is disagreement concerning the RFI response.

C. Subsequent resubmittals shall be identified with the same RFI number and a consecutive letter designation. Resubmittals shall clearly state the reason for resubmitting.

**END OF SECTION**
SECTION 01 29 76

PROGRESS PAYMENT PROCEDURES

1.01 GENERAL

A. Progress payments will be made monthly in accordance with the Bidding Schedule.

B. Payment for items with a unit price will be based on the number of units completed.

C. Payment for lump sum items will be based on an estimate of the percent of work completed.

D. Payment for other items will be based on the Schedule of Values.

E. A portion of the progress payment will be retained until the Work is completed and accepted by the Board.

1.02 SCHEDULE OF VALUES

A. After review of the initial schedule and before submission of the first Application for Payment, Contractor shall prepare and submit to Engineer a schedule of values covering each bid item. It shall be consistent with the Base Line Schedule. The cost for all activities plus the cost for Major Equipment shall equal the Total Bid Amount. The Schedule of Values will be used as the basis for progress payments.

B. Payment for mobilization will be prorated until all the following items have been completed. Mobilization includes:

1. Project manager on site full-time.

2. Plant and construction equipment for activities for first month on-site.

3. Field office setup with utilities.

4. Fire protection established.

5. Construction yard setup with storage and maintenance facilities and utilities setup.

6. Storm water BMP's installed.

7. Safety Plan submitted and required notices posted.


C. As-Built Documentation

1. Progress payments for as-built documentation will be made based on the quantity of documents submitted in accordance with weighting established in Section 01720. The progress payment will be based on the number of documents submitted and accepted in proportion to the total number of as built documents.

D. Demobilization includes:

1. Submittal of warranties.
2. Removal of plant and construction equipment.
3. Removal of field office, construction yards and related facilities, utilities and project signs.
4. Cleanup and disposal of materials, supplies, equipment and debris.
5. Restoration of areas, roads and other facilities damaged or altered as a result of the Work.

1.03 PAYMENT PROCEDURE

A. Provide 3 copies of the progress payment request by the 10th of each month. The request shall be signed by the Contractor attesting to the correctness of the information. The request shall include a breakdown of the items of work that have been completed. Supporting documentation shall be included. The District will review the request and make payment for those items in accordance with the requirements of the Contract and the Schedule of Values. Payment will not be made for deficient or defective work.

B. Progress payments do not constitute acceptance of the Work or a waiver of any terms or conditions of the Contract.

1.04 RETENTION

A. Five percent of each progress payment will be retained until the Work has been completed and accepted by the Board. If the work is progressing in accordance with the Contract, the Contractor may request, after 50 percent of the Work has been completed, including change orders, that the withholding of additional retention cease. The District will review the progress to date and the remaining work. If it appears that the work will be successfully completed, the District will waive the retention on the remaining work.

B. Contractor may deposit securities in lieu of retention pursuant to Sections 22300 of the Public Contract Code.
C. At the request and expense of the Contractor, securities having a value equivalent to or
greater than the withheld amount may be deposited with a state or federally chartered
bank as escrow agent payable in whole or in part to the District upon demand and
certification by the District’s Representative that the Contractor has defaulted in the
performance of the obligation under the contract and setting forth the amount of
security needed to satisfy the completion of the obligation of the Contractor.

D. The Contractor shall be the beneficiary of any securities for monies withheld and shall
receive any interest thereon.

1.05 WITHHOLDING

A. The District will withhold additional amount from progress payments for the following
causes:

1. Claims against the Contractor for non-payment for labor, equipment or materials.

2. Defective work.

3. Failure to pursue the Work in accordance with the schedule.

4. Damage to District facilities or to other parties.

5. The cost to the District if the Work is not completed within the Contract Time.

6. Costs for replacement insurance due to cancellation or insufficient coverage.

7. Failure to pay prevalent wages or submit certified payroll records.

8. Failure to provide submittals, as-built documentation or operating and maintenance
manuals.

9. Payments due the District from the Contractor.

10. Provisions of law that enables or requires the District to withhold payments.

B. Withheld funds which are not a penalty will be paid to the Contractor when the reason
for the withhold has been resolved.

C. The District may use withheld or retained funds to pay valid claims. In so doing, the
District shall be considered an agent of the Contractor and shall not be liable for
payments made in good faith. Such payments may be made without judicial
determination of the claim. A complete and proper accounting will be provided.

1.06 FINAL PAYMENT
A. A final estimate will be prepared by the Resident Engineer upon completion of the Work and a request for final payment. All prior estimates, progress payments, retention, withholdings and change orders shall be considered. A copy of the final estimate will be provided to the Contractor.

B. The Contractor shall accept the final estimate or provide a written statement of exceptions with sufficient detail to ascertain the basis and amount within 15 days. Failure to provide a statement of exceptions within the allotted time shall indicate acceptance.

C. The District will pay the final payment amount after 35 days from the date of acceptance by the Board and recording of the Notice of Completion if no Stop Notices or claims have been filed.

D. Acceptance of the final payment shall release the District, its agents and consultants from any and all claims or liability on account of the work under the Contract or any alterations thereof.

**END OF SECTION**
SECTION 01 31 19

PROJECT MEETINGS

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Meetings will be required throughout the duration of the Contract to facilitate communication, coordination and resolution of issues. District, Contractor, Design Consultant, subcontractors, and other parties involved in the Work shall attend.

B. There will be meetings to discuss particular aspects of the Work such as: scheduling, coordination, submittals, procedures, Access Requests, changes orders, testing, startup, and other topics as needed.

C. District Representative will designate the purpose, date, time, and location for meetings. Contractor may request meetings as needed.

D. All meetings shall be documented in the District-furnished, web-based, document control system in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Specification Section (01 31 26).

1.02 PRECONSTRUCTION

A. A preconstruction meeting will be held prior to commencement of Work. This meeting will provide an opportunity for individuals to discuss initiation of the Work. Topics to be discussed include: mobilization, access, temporary facilities, utilities, subcontractors, schedules, procedures, correspondence, progress payments, payroll records, Access Requests, coordination, safety, quality control, personnel assignments and other topics as appropriate.

B. District, Contractor, Design Consultant, and major subcontractors shall attend.

1.03 PROGRESS

A. Weekly progress meetings will be conducted throughout the duration of the Contract. The purpose of these meetings is to inform, discuss and resolve issues related to the Work. Topics to be discussed include: progress, schedules, Access Requests, Requests for Information, Change Orders, Field Instructions, field coordination, submittals, quality control, testing, startup and other topics related to the Work.

B. District, Contractor, Design Consultant, subcontractors and suppliers as appropriate shall attend.
SECTION 01 31 26

ELECTRONIC COMMUNICATIONS

1.01 GENERAL

A. The Internet will be one of the methods to be used for communications regarding the Work. Contractor shall have the hardware and software to send and receive e-mail correspondence from District.

B. Additional requirements for preparation and submittal of documents are delineated in the respective sections.

1.02 REQUIREMENTS

A. The following equipment must be in-place:

1. Personal Computer

2. High-speed Internet Service (Cable or DSL)

B. The following software shall be installed:

1. Internet Explorer 7.0

2. Microsoft Office 2007

3. Adobe Acrobat 9.0

4. Other software may be utilized if compatible with the District’s Representative and approved by the District.

C. Additional software requirements for preparation and submittal of documents are described in the respective specification sections.

1.03 RECORDS

A. Hard copies of e-mail and referenced documents shall be provided to District within 3 days.

B. Time for review and response by District commences when hard copies are received.

**END OF SECTION**

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SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

1.01 GENERAL

A. Schedules are required to demonstrate a method to accomplish the Work within the Contract Time. The District will rely upon the schedules to plan and coordinate activities with the Contractor and with others affected by the Work. Schedules shall be practical, logical, and an orderly sequence of planned operations. It shall include activities by suppliers, subcontractors and the District that are necessary to complete the Work in accordance with the Contract.

B. The schedules shall be calendar based, time-scaled with activities listed by precedent from beginning to completion. Schedules and Updates shall be submitted for review in accordance with Section 01 33 00.

C. Schedules shall include time provided in the Contract for District interfacing activities.

1.02 REQUIREMENTS

A. Initial Schedule

1. Furnish a Bar Chart within 10 days of execution of the Contract depicting the major activities and items of the Work. The critical path should be noted. Start and finish dates for major activities shall be provided.

B. Rolling Schedule

1. Furnish a 3-week rolling schedule depicting the activities in detail. The Rolling Schedule shall indicate the items that were completed the prior week and the planned activities for the upcoming 2 weeks. The Rolling Schedule shall be updated weekly and shall be presented at Progress Meetings.

1.03 UPDATING

A. The schedules shall be updated to accurately depict the progress of the Work and any changes that may occur. Significant changes shall be noted.

1.04 PAYMENT

A. Payment for schedules shall be considered included in the Total Bid Amount and no separate compensation will be provided.

**END OF SECTION**
SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 -- SUBMITTALS

1.01 GENERAL

A. A submittal consists of descriptive literature, information, plans, calculations, test data, details and drawings for items proposed for the Work. Sufficient information shall be provided to demonstrate compliance with the Contract Documents. A sample or mock-up of a product or material shall be included with a submittal where required.

B. A submittal is required for all materials, products, equipment, or systems that will become part of the Work. Specific submittal requirements are indicated in the respective specification sections. Components or items that comprise a unit or system shall be packaged in a single submittal.

C. Submittal information and drawings from subcontractors and suppliers shall be coordinated, reviewed and submitted by Contractor.

D. District and Design Consultant will review submittals for conformance with the Contract Documents, codes and standards. Review does not indicate suitability or acceptability.

E. A submittal does not relieve, alter, waive or change the requirements of the Contract Documents. Alternates or substitutions shall not be proposed in a submittal.

F. District does not have a duty to identify inconsistencies, errors, fit-up requirements or to determine compatibility of the proposed items. Coordination and compatibility of individual submittals is the responsibility of Contractor. Contractor shall verify all dimensions, measurements and quantities required for a submittal.

G. A resubmittal is required whenever a change occurs affecting a prior submittal.

1.02 PROCEDURE

A. A complete list of submittals shall be furnished within 10 days following the Notice to Proceed. District will review the list and return within 10 days.

B. Submittals shall be consecutively numbered. Resubmittals shall use the prior number with a sequential letter suffix.

C. Sufficient information shall be provided to describe what is proposed. The applicable sections of the Contract Documents shall be listed.
D. Submittals with more than one item shall have sections for the respective items. Items shall be clearly identified.

E. Submittals shall be complete and shall be timely in submission to avoid delay of the Work. The priority of each submittal shall be indicated. The schedule shall provide time for preparation and review of submittals and resubmittals.

F. All deviations and exceptions to the Contract Documents shall be conspicuously noted in the submittal and transmittal form.

G. Two hard copies and one electronic copy shall be included with each submittal. Each copy shall include a transmittal form. Copies shall be high quality, full-size, legible with crisp lettering and lines. Hard copies shall be on plain bond paper. Maximum sheet size is 22 inches by 34 inches. It is recommended that drawings be produced using the most current AutoCAD software by Autodesk, Inc. One Compact Disc shall be provided for CAD generated drawings.

H. One submittal copies will be reviewed, rated and returned should mark ups be required to comment on a submittal. An electronic submittal comment sheet will be returned on submittals not requiring mark ups.

I. All submittals shall be originals or first generation plain bond photo copies. Multiple generation photo copies and FAX transmittals are not acceptable if, in the opinion of the District’s Representative, they are of reduced legibility. Minimum size lettering height on all submittals shall be 12 point for typewritten documents, 1/16 inch height for 8-1/2 x 11 inch and 11 x 17 inch documents, and 1/8 inch height for documents larger than 11 x 17. All magnetic media files shall be provided on Compact Disc(s).

J. Shop drawings shall have drawing numbers, scale, revision date and number, Contractor name, subcontractor name, supplier name, name of detailer or engineer who prepared the document, relation to adjacent structures, materials, drawing cross references, standard references, Contractor’s certification stamp, and registered engineer’s stamp, if required, shown on them.

K. Refer to Section 01 78 23 for the submittal requirements of operation and maintenance instructions. Operation and maintenance instructions will not be submitted until approved equipment or material submittals are received.

L. Submittals shall be transmitted with a transmittal form containing the following information as a minimum:

1. Date.
2. Submittal or resubmittal number.
3. Contract title and number.
4. Contractor’s name and address.
5. List of documents being submitted, by preparer, number and version.

6. Contract documents references (including specific specification section and drawing numbers) for each submittal document.

7. Previous submittal number and item number for each submittal document.

8. Notification of deviation(s) form contract documents for each submittal document.

9. Contractor’s certification of having reviewed and coordinated the submittal.

10. Description of intended use in this contract.

1.03 REVIEW

A. Up to 10 submittals per week will be reviewed. Review time will be approximately 20 days. Additional review time will be required for large complex submittals or if more than 10 submittals are submitted within a week. Submittals for “or equal” items will require approximately 30 days for review. Resubmittals will require approximately 15 days for review.

B. Submittals that are incomplete or do not demonstrate compliance with the Contract Documents will be returned without review.

C. Review Criteria:

1. “A” indicates the submittal conforms to the Contract Documents.

2. “B” indicates the submittal would conform to the Contract Documents after review comments have been incorporated.

3. “C” indicates that changes or additional information are necessary to comply with the Contract Documents. A resubmittal is required.

4. “D” indicates that the submittal does not comply with the Contract Documents. A resubmittal is necessary.

5. “E” indicates that the submittal has not been compared with the Contract Documents.

6. “F” indicates that the submittal has been received and no action is needed by District.

**END OF SECTION**
SECTION 01 41 26

PERMIT REQUIREMENTS

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Building, plumbing, heating, electrical and similar permits which the Contractor is required to obtain from the County or City Building Inspection Divisions for District-owned projects are fee exempt. These permits will be obtained by the District’s Representative. Drainage fees, utility connection fees, and other permits and licenses unique to the project will be paid by District. The Contractor shall procure all permits and licenses necessary for the normal conduct of its business operations.

B. The California Environmental Quality Act of 1979 (CEQA) as amended may be applicable to permits, licenses and other authorizations which the Contractor must obtain from local agencies in connection with performing the Work of the Contract. The Contractor shall comply with the provisions of said statutes in obtaining such permits, licenses and other authorizations and they shall be obtained in sufficient time to prevent delays.

C. In the event the District has obtained permits, licenses or other authorizations applicable to the work in conformance with the requirements of CEQA, the Contractor shall comply with the provisions of said permits, licenses and other authorizations as presented in the WORK RESTRICTIONS Specification Section (01 14 00).

<table>
<thead>
<tr>
<th>Permit</th>
<th>Regulatory Agency</th>
<th>Party Responsible for Obtaining Permit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ca Well Drilling Permit</td>
<td>County of Sacramento, Environmental Management Dept.</td>
<td>Contractor</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.emd.saccounty.net">http://www.emd.saccounty.net</a>)</td>
<td></td>
</tr>
<tr>
<td>Waste Discharge Requirements/NPDES Permit</td>
<td>California Regional Water Quality Control Board, Central Valley Region (CARWQCB)</td>
<td>District</td>
</tr>
</tbody>
</table>

D. Whenever an operation is required in which a hazardous condition exists, the Contractor shall be responsible for, and shall comply with, the Work Permit procedures specified in the SRWTP Safety Manual.
1.01 PAYMENT

    A. Full compensation for work involved in compliance with the requirements of this section shall be considered included in the contract unit prices paid for the various items of work involved and no additional compensation will be allowed therefore.

    **END OF SECTION**
SECTION 01 51 00
TEMPORARY UTILITIES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Contractor shall be responsible for providing and maintaining the required utilities for construction facilities, such as telephone, electric, and water service necessary for use at Contractor's expense except as noted in this section. Construction facilities are described in the CONSTRUCTION FACILITIES Section (01 52 00).

B. Contractor shall provide temporary utilities which will enable construction processes and will accommodate other necessary activities at the site. Providing adequate temporary utilities is Contractor's responsibility, and is not limited to the minimums established by the requirements hereof.

C. The types of temporary utilities required for the project include (but are not necessarily limited to) the following:

1. Field offices for Contractor;
2. Electric power;
3. Potable water;
4. Sanitary facilities;
5. Collection/disposal of waste material;
6. Telephones;
7. Internet and computer network communications;
8. Non-potable water for construction activities.

D. The District has designated a general contractor laydown area at the Plant as described in the RFB Document.

E. Unless coordinated with the District, Contractor shall not use existing plant utilities such as water supplies (WP, WN, WRH, and WRL), air supplies (UA and SA), steam system, telephone, public address system, radio frequency, etc.
F. The following tabulation shows details of District's intent for responsibility of providing utilities:

<table>
<thead>
<tr>
<th>Facility</th>
<th>Contractor-Supplied Utilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident Engineer Office</td>
<td>None</td>
</tr>
<tr>
<td>Contractor and subcontractor field offices</td>
<td>All</td>
</tr>
<tr>
<td>Contractor and subcontractor on site storage facilities</td>
<td>District will supply power at existing 480 volt receptacles; Contractor to provide all others.</td>
</tr>
<tr>
<td>Construction utilities</td>
<td>Contractor shall provide all utilities required for work.</td>
</tr>
<tr>
<td>Construction Water</td>
<td>District will supply non-potable water from on-site wells or from District’s Non-Potable Water Fill Station. One well is located at the corner of Laguna Station Road and Glacier Way and the second is located at the NW corner of DLD-1. The Non-Potable Water Fill Station located South of the SRWTP Lab next to the reception parking lot.</td>
</tr>
<tr>
<td>Contractor shop areas</td>
<td>All</td>
</tr>
<tr>
<td>Performance Testing</td>
<td>District will supply power and Contractor shall provide all other utilities and fluids including lubricants as needed except as specified in the USE OF SITE Section (01 14 19).</td>
</tr>
<tr>
<td>Operational and Reliability Testing</td>
<td>District will supply all connected utilities (i.e. cooling water, seal water, power). Contractor shall supply hydraulic fluids, lubricants, etc.</td>
</tr>
</tbody>
</table>

1.02 QUALITY ASSURANCE

A. REGULATIONS:

1. Comply with governing regulations for the installation and use of general service facilities, including health and safety regulations.

B. STANDARDS:

1. Comply with Subchapter 4, CAC Title 8, Construction Safety Orders, and Subchapter 7, General Industrial Safety Orders, as applicable.

C. RESPONSIBILITIES:
1. Except as otherwise indicated, the assignment of responsibilities for installing utilities and for complying with trade regulations and union jurisdictions associated therewith, is Contractor's obligation.

1.03 SUBMITTALS

A. Submit to the District Representative for information only copies of inspection reports, certificates, permits and similar documentation required in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

1.04 SCHEDULED USES

A. Provide temporary utilities at the time first needed at the site; and maintain, expand and modify the facilities as needed throughout the construction period.

1.05 CONDITIONS OF USE

A. Operate, maintain, control and protect temporary utilities in a manner which will prevent fire, discomfort to users, flooding, interference with the construction work, and similar deleterious effects.

PART 2 -- PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. GENERAL:

1. Unless otherwise specified, Contractor may provide either new or used materials and equipment for general service facilities, which are in substantially undamaged condition and without significant deterioration and which are recognized in the construction industry by compliance with appropriate standards, as being suitable for the intended use in each application.

B. NONPOTABLE WATER:

1. Contractor may use the existing well located near the southwest corner of Laguna Station Road and Glacier Way. Use of this well will be shared with other contractors and District staff. The approximate capacity of the well pump is 1,100 gpm. Contractor shall use care when using this well and shall follow all District operating procedures. Contractor shall notify the District’s Representative immediately if Contractor observes any issues with the wells.

2. Contractor may also use the existing well located at the corner of Sims Road and Echo Road. Use of this well will be shared with other contractors and District staff. The approximate capacity of the well pump is 1,100 gpm.
3. The Non-Potable Water Fill station is located South of the SRWTP Lab next to the reception parking lot.

PART 3 -- EXECUTION

3.01 INSTALLATION OF TEMPORARY UTILITIES

A. GENERAL:

1. Locate utilities where they will serve the total project construction work adequately, and result in minimum interference with performance of the work. Relocate, modify and extend utilities as required during the course of the work, to properly accommodate the entire work of the project. Provide a reasonably neat and uniform appearance in general service facilities, acceptable to the District Representative.

2. Except as otherwise indicated, do not plan to change over from use of temporary utilities to use of permanent facilities until time of substantial completion, or for longer periods of time as requested by District. However, it is recognized that certain utilities will need to be removed from the site at or near the time of field acceptance, and that Contractor's personnel remaining at the site beyond that time will be permitted to use certain permanent facilities, under restricted use conditions which are acceptable to the District Representative.

B. DRINKING WATER:

1. Supply drinking water for construction personnel by containerized tap-dispensers with paper cups.

C. SANITARY SEWER

1. GENERAL:

a. Sanitary facilities include toilets, wash facilities, drinking water fixtures and food/beverage service facilities (if any). Comply with governing regulations including safety and health codes for the type, number, location, operation, and maintenance of fixtures and facilities, but provide not less than the specified requirements. Install sanitary facilities in available locations which will best serve the needs of personnel at the project site.

b. Distribute toilets and drinking water fixtures as necessary. Plant washroom, toilet, and drinking water facilities shall not be used by Contractor or subcontractor personnel.

c. Supply and maintain toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each sanitary facility, and provide and empty waste paper containers for used materials.
2. **TOILETS:** Self-contained toilet units permitted by governing regulations.

3. **DRINKING WATER FIXTURES:** Contractor shall supply drinking water for construction personnel by containerized tap dispensers with paper cups.

**D. COLLECTION AND DISPOSAL OF WASTES:**

E. Establish and enforce a daily system for collecting and disposing of waste materials from construction areas and elsewhere at the project site. No waste material can be stored in tunnels or buildings; it must be disposed of daily. Do not hold collected materials at the site for periods of more than 7 days, nor for periods of more than 3 days during hot weather (when daily temperatures can be expected to rise above 80 degrees F). Handle hazardous, dangerous, unsanitary, contaminated, polluting and similar harmful wastes separately from inert materials. Store and dispose of hazardous wastes in a lawful and timely manner. Allowable mandated storage retention times may be less than the 7 day limit stated for nonhazardous wastes. Dispose of each category of waste material in a lawful manner. Do not bury or burn waste materials on District property.

**F. NETWORK AND TELEPHONE COMMUNICATIONS**

1. Contractor will provide all necessary network and telephone communications. Plant network or telephones shall not be used by Contractor or subcontractor personnel.

2. Post a listing of telephone numbers at each telephone location, including local police, fire department, doctor, ambulance service and similar emergency numbers as well as temporary and home offices of contractors, principal subcontractors, architects, engineers, representatives of District, and others involved with the performance of the work.

3.02 **MAINTENANCE AND TERMINATIONS**

**A. MAINTENANCE:**

1. Operate and maintain temporary utilities in good operating condition through the time of use, and until removal is authorized. Protect from damage by weather.

**B. TERMINATION AND REMOVAL:**

1. When the need has ended for each temporary utility, or at the time of substantial completion, promptly remove the utility unless requested by the District Representative to retain it. Complete or restore permanent work which may have been delayed or otherwise affected by the temporary utility. Replace work which cannot be satisfactorily restored.

**END OF SECTION**
SECTION 01 52 00
CONSTRUCTION FACILITIES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Contractor shall be responsible for providing and maintaining the necessary field offices, material storage and sanitary facilities necessary for use at Contractor's expense except as noted in this section. Temporary utilities for construction facilities are described in the TEMPORARY UTILITIES Section (01 51 00).

B. Contractor shall provide temporary facilities which will enable construction processes, and will accommodate other necessary activities at the site. Providing adequate general services is Contractor's responsibility, and is not limited to the minimums established by the requirements hereof. Except as otherwise indicated, the use of alternative general services equivalent to those specified is Contractor's option, subject to acceptance by the District Representative. Temporary general services exclude inspection and testing services, surveys, photographs, security provisions, protection, safety, final cleaning, start-up of systems, instructions to District personnel and other services which are recognized to be similar to the work of this section but are specified in other sections hereof, if required.

C. The types of temporary facilities and general services required for the project include (but are not necessarily limited to) the following:

1. Field offices for Contractor and subcontractor;
2. On-site storage facilities for Contractor and subcontractor;
3. Sanitary facilities;
4. Collection/disposal of waste materials; and
5. Miscellaneous general services.

D. Contractor shall not use existing plant facilities such as restrooms, lunchrooms, etc.
1.02 QUALITY ASSURANCE

A. REGULATIONS:

1. Comply with governing regulations for the installation and use of general service facilities, including health and safety regulations.

B. STANDARDS:

1. Comply with Subchapter 4, CAC Title 8, Construction Safety Orders, and Subchapter 7, General Industrial Safety Orders, as applicable.

C. RESPONSIBILITIES:

1. Except as otherwise indicated, the assignment of responsibilities for installing facilities and performing general services, and for complying with trade regulations and union jurisdictions associated therewith, is Contractor's obligation.

1.03 SUBMITTALS

A. Submit to the District Representative for information only copies of inspection reports, certificates, permits and similar documentation required or issued in connection with general services in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

1.04 SCHEDULED USES

A. Provide temporary general services at the time first needed at the site; and maintain, expand and modify the facilities as needed throughout the construction period.

1.05 CONDITIONS OF USE

A. Operate, maintain, control and protect general service facilities in a manner which will prevent fire, hazardous exposures, health problems, unsanitary conditions, pollution, contamination, discomfort to users, flooding, interference with the construction work, public nuisances and similar deleterious effects.

PART 2 -- PRODUCTS

2.01 MATERIALS AND EQUIPMENT OF GENERAL SERVICES

A. GENERAL:

1. Unless otherwise specified, Contractor may provide either new or used materials and equipment for general service facilities, which are in substantially undamaged condition and without significant deterioration and which are recognized in the
construction industry by compliance with appropriate standards, as being suitable for the intended use in each application.

B. CONSTRUCTION MATERIALS:

1. For offices, fabrication shops, storage sheds and similar construction, provide standard-manufactured prefabricated or mobile home construction insulated and weather-tight where indicated to be heated or air conditioned, or provide equivalent job-built construction. Equip each unit with locked entrances, operable windows, roofing, adequate foundations for usual loading including wind loads, serviceable finishes of the types indicated, and mechanical/electrical equipment as needed to achieve the ambient conditions indicated.

C. SELF-CONTAINED TOILET UNITS:

1. Single-occupant, self-contained units of the chemical aerated recirculation type fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material, properly vented and maintained in operation.

PART 3 -- EXECUTION

3.01 INSTALLATION OF GENERAL SERVICE FACILITIES

A. GENERAL:

1. Locate facilities within the designated Contractor area where they will serve the total project construction work adequately, and result in minimum interference with performance of the work. Relocate, modify and extend facilities as required within the designated area during the course of the work, to properly accommodate the entire work of the project. Provide a reasonably neat and uniform appearance in general service facilities, acceptable to the District Representative.

2. Except as otherwise indicated, do not plan to change over the use of permanent facilities of the project to replace the use of temporary general service facilities. However, it is recognized that certain general service facilities will need to be removed from the site at or near the time of field acceptance, and that Contractor's personnel remaining at the site beyond that time will be permitted to use certain permanent facilities, under restricted use conditions which are acceptable to the District Representative.

B. SANITARY FACILITIES:

1. GENERAL:

   a. Sanitary facilities include toilets, wash facilities, drinking water fixtures and food/beverage service facilities (if any). Comply with governing regulations including safety and health codes for the type, number, location, operation, and
maintenance of fixtures and facilities, but provide not less than the specified requirements. Install sanitary facilities in available locations which will best serve the needs of personnel at the project site.

b. Distribute toilets and drinking water fixtures as necessary. Plant washroom, toilet, and drinking water facilities shall not be used by Contractor or subcontractor personnel.

c. Supply and maintain toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each sanitary facility, and provide and empty waste paper containers for used materials.

2. TOILETS: Choice of either self-contained toilet units or water/sewer connected temporary toilet installations (or both) is Contractor's option to the extent permitted by governing regulations. The provision of water/sewer connections is Contractor's responsibility in accordance with the TEMPORARY UTILITIES Section (01 51 00).

3. DRINKING WATER FIXTURES: Supply drinking water for construction personnel by either containerized tap-dispensers with paper cups, or by water-system connected drinking fountains (or both), at Contractor's option. Refer to the TEMPORARY UTILITIES Section (01 51 00) for temporary potable water supply.

4. SHOWERS: Contractor may provide a shower facility for which Contractor would be responsible for providing potable water and sewer connection in accordance with the TEMPORARY UTILITIES Section (01 51 00). Location of shower facility shall be approved by the District Representative, and may possibly be placed in the plant facility somewhat remote from the project site. Existing District showers may not be used by Contractor, except as approved by the District Representative for unusual situations.

C. COLLECTION AND DISPOSAL OF WASTES:

1. Establish and enforce a daily system for collecting and disposing of waste materials from construction areas and elsewhere at the project site. No waste material can be stored in tunnels or buildings, it must be disposed of daily. Do not hold collected materials at the site for periods of more than 7 days, nor for periods of more than 3 days during hot weather (when daily temperatures can be expected to rise above 80 degrees F). Handle hazardous, dangerous, unsanitary, contaminated, polluting and similar harmful wastes separately from inert materials. Store and dispose of hazardous wastes in a lawful and timely manner. Allowable mandated storage retention times may be less than the 7-day limit stated for nonhazardous wastes. Dispose of each category of waste material in a lawful manner. Do not bury or burn waste materials on District property.
D. MISCELLANEOUS GENERAL SERVICES:

1. Include whatever general services may be required, or are found to be necessary, for the accommodation of the work. The items of general service which may be needed include, but are not necessarily limited to, the installation of postal delivery service, parking spaces at the temporary offices, walkways in and around the construction area and personal protection items for employees and visitors.

3.02 OPERATIONS AND TERMINATIONS

A. SUPERVISION:

1. Enforce strict discipline in the use of general services at the project site. Limit availability of facilities to essential and intended uses, so as to minimize wastes and the possibility of abuses and the resulting unsanitary and hazardous or dangerous conditions. Do not allow temporary offices and similar temporary or permanent spaces to be used as living quarters, or for other unintended occupancies or uses.

B. JANITORIAL SERVICES:

1. Provide daily janitorial services for temporary offices, toilets, wash facilities, and similar areas at the project site. Require users of other general services to maintain clean and orderly premises.

C. MAINTENANCE:

1. Operate and maintain general services in good operating condition through the time of use, and until removal is authorized. Protect from damage by weather.

D. TERMINATION AND REMOVAL:

1. When the need has ended for each temporary general service facility, or at the time of substantial completion, promptly remove the facility unless requested by the District Representative to retain it. Complete or restore permanent work which may have been delayed or otherwise affected by the temporary facility. Replace work which cannot be satisfactorily restored. Except as otherwise indicated, the materials and equipment of temporary general services remain the property of Contractor. District reserves the right to take possession of project identification signs.

**END OF SECTION**
SECTION 01 55 26

TRAFFIC CONTROL

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

   1. This section specifies traffic control requirements to be implemented by Contractor through the entire duration of this project. Contractor shall be responsible for the safety of traffic within all areas of Contractor's work and on the approaches to the areas of work. Contractor shall furnish, erect, and maintain such warning devices as are necessary to protect the public, and the District Representative may point out inadequacies of such warning devices. However, Contractor shall not be relieved of the responsibility to protect the public by any approval given by the District Representative or by the District Representative's failure to point out a deficiency. As a minimum, traffic control shall be implemented in the following areas:

   B. TRAFFIC CONTROL ON CONTRACTORS' ACCESS ROAD:

       1. Contractor shall provide general control of traffic on Contractors' Access Road. The traffic on Contractors' Access Road will mainly consist of construction contractors and their road vehicles, other contractor deliveries of material and equipment, and inspection vehicles driven by the District Representative.

       2. Contractor shall not allow any disturbance of the pavement on Contractors' access road other than as required for the construction of the improvements included in this contract.

   C. LEVEE ROADS: (NOT USED)

1.02 QUALITY ASSURANCE

A. Contractor shall, 48 hours in advance of beginning any work, notify the District Representative in writing of the name, location, and 24-hours-per-day telephone number of the company which will supply barricade and warning devices for the project. Said supplier must be approved by District’s Representative, and must be available on a 24-hour basis for maintaining, placing, and replacing lighted barricades and warning devices. If the District Representative is unable to contact Contractor or superintendent, the supplier will be called directly, and Contractor shall accept charges made by the supplier for service performed, as a result of the District Representative's call.
B. Contractor shall furnish and install all traffic and warning signs, lighted barricades, etc., as per Section 12, "Temporary Traffic Control," of the Caltrans Standard Specifications. Contractor attention is directed to Section 7-1.03, "Public Convenience," Section 7-1.04, "Public Safety," of the Caltrans Standard Specification.

1.03 SUBMITTALS

A. The following information shall be provided in accordance with the SUBMITTAL PROCEDURES Specification Section (01 33 00):

1. Traffic control plan for Contractors' access road.

2. Traffic control plan for Contractors' access road bypass.

B. The traffic control plan shall include drawings showing work areas, traffic signs, barricades, flag people, and temporary signals locations and control descriptions, including proposed Caltrans standard drawings and specifications. The traffic control plan for each area shall be submitted to District’s Representative for review prior to commencing work in the area.

C. All costs, including flagging, shall be borne by Contractor. Contractor shall provide safe passage for vehicular and pedestrian traffic through the work at all times.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION

3.01 GENERAL

A. No work shall commence until approved traffic control signs have been placed at the job site. All signs shall be in accordance with Caltrans standard specifications concerning size, reflectorization, and color. All signs shall be post-mounted unless otherwise specified by the District Representative.

B. District’s Representative may require Contractor to install additional signs or other safety controls as required for public safety.

C. All roadway closures shall be minimized and coordinated in accordance with the COORDINATION WITH OCCUPANTS Specification Section (01 14 16) such that access to all facilities remains open and accessible for plant use and emergency vehicles.

3.02 DUCT BANKS, CONDUITS, PIPING

A. The excavation plan and schedule for constructing all duct banks, conduits, piping and manholes located in plant roads shall be coordinated with District’s Representative in
accordance with the COORDINATION WITH OCCUPANTS Specification Section (01 14 16). The duct banks, conduits, piping and manholes shall be constructed in a sequence to minimize interruption to plant traffic. Contractor shall provide temporary access to all plant traffic during closures of roadway during construction in accordance with the requirements of the WORK RESTRICTIONS Specification Section (01 14 00) and the COORDINATION WITH OCCUPANTS Specification Section (01 14 16). All excess dirt excavated during construction shall be disposed at the site identified in the drawings of the Site Work Key Plan.

3.03 TEMPORARY SUPPORT FOR TRENCHES

A. Contractor shall provide steel plates for temporary trench crossings. The temporary trench crossings shall be able to safely withstand traffic loads from heavy material delivery trucks and any other plant traffic.

B. Contractor shall provide steel plating over excavations for continuous access by District staff when work is not in progress in those excavated areas adjacent to equipment in operation.

**END OF SECTION**
PART 1 -- GENERAL

1.01 HOUSEKEEPING

A. Throughout the construction period, Contractor shall keep the site of the work in a presentable condition, shall dispose of any surplus materials appropriately, clean out all drainage ditches and structures, and repair any fences or other property damaged during the progress of the work, to the satisfaction of the District Representative.

B. Upon completion of the work, and prior to requesting final inspection, Contractor shall thoroughly clean the site of the work of all rubbish, excess material, and equipment, and all portions of the work shall be left in a neat and orderly condition. The final inspection will not be made until this has been accomplished.

1.02 TEMPORARY DAMS

A. Except in time of emergency, earth dams are not acceptable at catch basin openings, local depressions, or elsewhere. Temporary dams of sand bags, asphaltic concrete, or other acceptable material will be permitted when necessary to protect the work, provided their use does not create a hazard or nuisance to the public. Such dams shall be removed from the site as soon as they are no longer necessary.

1.03 AIR POLLUTION CONTROL

A. Contractor shall comply with all air pollution control rules, regulations, ordinances, and statutes which apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances, and statutes, specified in Section 11017 of the Government Code.

1.04 SOUND CONTROL REQUIREMENTS

A. Contractor shall comply with all local sound control and noise level rules, regulations, and ordinances which apply to any work performed pursuant to the contract.

B. Each internal combustion engine shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated without said muffler.

C. No internal combustion engine shall be operated in the tunnel system or enclosed below grade spaces or HVAC air intakes.
1.05 WATER POLLUTION AND SOIL CONTAMINATION

A. Contractor shall comply with all federal state, and local rules, regulations, ordinances, and statutes which apply to water pollution and soil contamination, including the TEMPORARY STORM WATER POLLUTION CONTROL Section (01 57 23).

B. In order to minimize the possibility of water or soil contamination due to spills of crankcase oil, gasoline and other fuels, Contractor shall designate an area for the storage and handling of lubricants, fuels and other supplies which is acceptable to the District Representative.

1.06 HAZARDOUS MATERIALS

A. Contractor shall comply with all applicable federal environmental regulations by the U.S. Environmental Protection Agency (US EPA), United States Department of Transportation (US DOT), Occupational Safety and Health Administration (OSHA), the Resource Conservation and Recovery Act (RCRA), state environmental regulations and local environmental regulations and ordinances for hazardous waste/materials management.

B. Contractor shall develop and submit a Hazardous Material Plan (HMP) for hazardous materials anticipated during the project to the regulating authority (Sacramento County’s Environmental Management Department has been designated as the Sacramento region’s Certified Unified Program Agency (CUPA) by Cal EPA). A HMP is mandated when hazardous material/waste is stored in the reportable quantities:

1. Liquid: 55 gallons or greater
2. Solid: 500 pounds or greater
3. Gas: 200 cubic feet (at standard temperature and pressure) or greater

Note: A reportable quantity is the aggregate of all similar materials and accounts for the capacity to store. Example: 15 gallons of a hazardous waste stored in a 55 gallon container must be reported. The District will require any material meeting or exceeding the reportable quantity to be reported.

C. Contractor is required to secure all required regulatory permits and licenses necessary prior to performing all aspects of the work in accordance with the PERMIT REQUIREMENTS Section (01 41 26). A copy of the HMP, HMP amendments, permits, licenses, clearances or authorizations obtained by the Contractor shall be provided to the District Representative prior to bringing or storing hazardous materials on site.

D. Contractor shall be responsible for ensuring that Contractor personnel including subcontractors are adequately trained and understand how to handle, store, transport and dispose of waste per this specification. Contractor shall further ensure that personnel involved in the work area are aware of the spill prevention and containment responsibilities.
E. Contractor shall comply with all Federal and State laws for employee right-to-know in association with the use and storage of hazardous substances on-site. Contractor to have on the project site the Material Safety Data Sheets (MSDS)/Safety Data Sheets for all hazardous substances stored or used on-site, readily available to employees and inspectors at all times. Contractor is responsible for the removal and disposition of all surplus chemicals (e.g., paints, lubricants, and cleaning products) that they bring onsite as part of the work.

F. Contractor shall provide immediate notice to the District Representative in the event of a spill. Any release or threatened release on land or in watercourses, regardless of quantity, shall be cleaned up immediately.

G. The Contractor shall furnish certified copies of manifests (interim storage and final disposal) within regulatory requirements. Within 14 days from the acceptance of the waste by the disposal facility, the Contractor shall provide the District Representative with the Certificate of Disposal documentation.

H. Only Contractors licensed to transport hazardous materials/waste (under EPA and US DOT) shall be permitted to transport hazardous materials/waste. Transportation of hazardous material shall be conducted in accordance with all applicable regulations for proper packaging, marking/labeling, handling, and documenting. Contractors are responsible for ensuring that personnel preparing the shipment are properly trained and that proper shipping papers accompany shipments of hazardous materials.

I. Contractor shall be responsible and fully bear costs incurred by the District as a result of violations with applicable Federal, State and local Agencies for spills, unauthorized releases, and discharge, including but not limited to penalties assessed or levied, third party claims, citizen suits, labor materials, laboratory analyses, and handling and disposal of waste. Fines shall be deducted from contract payments specified in the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

1.01 PETROLEUM POLLUTION PREVENTION

A. Contractor shall comply with petroleum pollution prevention measures in accordance with the United States Environmental Protection Agency regulations contained in Title 40, Code of Federal Regulations, Part 112, the California Aboveground Petroleum Storage Act (APSA), and the California Health and Safety Code (Section 25270.4.5). Additionally, all fuel stored on site shall be stored in compliance with the Uniform Fire Code, NFPA standards, and all other applicable laws.

B. If above-ground fuel storage will exceed 55 gallons per container or 1,320 gallons aggregate, Contractor shall develop and submit a Spill Prevention, Control, and Countermeasure (SPCC) Plan as required by 40 CFR 112 Oil Pollution Prevention. The SPCC plan requirement is in addition to the requirements specified in the TEMPORARY STORM WATER POLLUTION CONTROL Section (01 57 23).
C. The SPCC plan shall be prepared and certified by a registered Professional Engineer. Maintain a certified copy of the SPCC plan on-site at all times during construction activities that is readily available to Contractor personnel, inspectors, and regulators. A copy of the SPCC and all amendments shall be submitted to the District Representative for review.

**END OF SECTION**
SECTION 01 57 23

TEMPORARY STORM WATER POLLUTION CONTROL

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. This section specifies the requirements for Stormwater Pollution Prevention which includes a Water Pollution Control Plan (WPCP) for a project resulting in less than one acre of soil disturbance, any size project fully within the Sacramento Regional Wastewater Treatment Plant (SRWTP) process area, or any project that is not otherwise subject to the requirements of the State Water Resources Control Board (SWRCB), Water Quality Order No. 2009-009-DWQ, National Pollutant Discharge Elimination System (NPDES), General Permit No. CAS000002, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activity (Construction General Permit) to control storm water discharges from construction sites.

B. Contractor may opt to implement a more restrictive program than that which is required. The Contractor must then conform to all requirements of both the minimum applicable program and the more restrictive program.

C. Contractor shall implement Best Management Practices (BMPs) including good housekeeping practices and erosion and sediment control, to prevent the direct and indirect contribution of any contaminants into the storm drain system or waters of the United States.

D. BMPs shall be implemented according to the California Stormwater BMP Handbook – Construction (2009) with updated 2011 BMP fact sheets. Non-structural and structural BMPs shall be acceptable to the District Representative and instituted or placed, as appropriate, before commencement of each phase of clearing, grading, excavation, trenching, or staging of materials that may be potential pollutants.

E. Furnish all labor, materials, equipment, and incidentals necessary to perform all installation, maintenance, removal, and area cleanup related to erosion and sediment control BMPs necessary to prevent the movement of sediment from the construction site to off-site areas including roadways, surface waters, storm drains, disposal locations, and flood control facilities.

F. Contractor shall be responsible and fully bear costs incurred by the District as a result of violations under the Federal Clean Water Act, the State Porter-Cologne Water Quality Control Act, or for unauthorized release or discharge from the work including but not limited to penalties assessed or levied, third party claims, citizen suits, labor, materials, analytical analyses, and handling of waste. Fines shall be deducted from
contract payments specified in the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

1.02 REFERENCES

A. The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of the referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall govern.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
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<tbody>
<tr>
<td>California Stormwater</td>
<td>California Stormwater BMP Handbook – Construction</td>
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<tr>
<td>Quality Association (CASQA)</td>
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1.03 SUBMITTALS

A. The following information shall be submitted for review and approval in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):

1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviation.

2. The Contractor shall designate a Storm Water Pollution Prevention Coordinator. This person shall have previous experience in erosion and sediment control with similar type and size projects and shall submit a resume to the District Representative for approval. This person will be responsible for preparing and implementing the WPCP.

3. The WPCP shall be submitted to the District within 10 days of the NTP and prior to the commencement of the Work.

4. Completed inspection and maintenance reports within 3 working days of preparation.

5. Upon completion of the project, submit the complete WPCP and relevant documents and amendments to the District Representative.
PART 3 -- EXECUTION

3.01 GENERAL

A. The Contractor shall assume responsibility for stormwater runoff management and erosion and sediment control at the project site during construction. Fully comply with all applicable state and local regulations, and requirements related to stormwater management, erosion and sediment control.

B. Prior to commencement of any land disturbing activity, the contractor shall submit the WPCP to the District Representative. No activity having the potential to cause water pollution, as determined by the District Representative, shall be performed until the District Representative has approved the WPCP and appropriate BMPs have been installed by the Contractor.

3.02 WATER POLLUTION CONTROL PLAN

A. Develop a Water Pollution Control Plan (WPCP) to identify potential pollutants associated with each phase of construction activity and non-structural and structural BMPs appropriate to each phase of the work. The WPCP shall detail the following, if applicable:
   - Schedule
   - Location of soil stockpiles
   - Location of solid waste containers
   - Vehicle and equipment fueling, servicing, cleaning and storage areas
   - Material storage areas
   - Chemicals, potential pollutants and hazardous materials to be used and methods for safekeeping
   - Site drainage during execution of the Work
   - Stabilization of vehicle access to site
   - De-watering operations
   - Methods for spill prevention and control
   - Secondary containment
   - Handling and disposal of solid waste
   - Storage and dispensing of fuel and lubricants
   - Clean out and disposal of ready mix concrete
   - Sanitation provisions
   - Disposal location for excess excavated material
   - Haul Routes

B. The WPCP shall include BMPs to prevent an unauthorized release or discharge of pollutants, contaminants, chemicals, hazardous substances or materials. The BMPs will be described in both narrative form and proper placement illustrated on figures.
C. Maintain one copy of the WPCP and amendments at the project site. The WPCP shall be made available upon request by a representative of the Regional Water Quality Control Board (RWQCB), State Water Resources Control Board (SWRCB), United States Environmental Protection Agency (USEPA), or the local stormwater management agency. Requests by the public shall be directed to the District Representative. At completion of construction, submit the complete WPCP, amendments, inspection and maintenance records, and any other relevant documents to the District’s Representative.

3.03 INSPECTIONS AND MAINTENANCE

A. Make a visual inspection of all BMPs as necessary to ensure proper operation but not less than once per week and within 24 hours before and after every rainstorm. If such inspection reveals that existing measures are damaged or that additional measures are needed to prevent movement of sediment to off-site areas, promptly repair, replace or install additional devices as needed within 24 hours of notification. Sediment controls in need of maintenance shall be repaired within 24 hours of notification.

B. Maintenance of BMPs shall be per the Construction BMP Handbook. Perform routine maintenance consisting of debris removal, silt/sediment removal, clearing of vegetation around flow control devices to prevent clogging, and maintenance of healthy vegetative cover.

C. The Contractor shall be responsible for preparing and maintaining inspection and maintenance records. Inspection and maintenance reports are to be submitted to the District Representative within 3 working days.

3.04 DISPOSAL OF EXCESS EXCAVATED MATERIAL

A. Excess excavated material is defined as material from onsite excavations that are beyond the volumes necessary to meet the finish grades shown on the Contract Documents.

B. The Contractor shall be responsible for the disposal of excess excavated material. The Contractor shall be responsible for hauling excess excavated material offsite in accordance with laws and regulations regarding disposal of such material.

3.05 NOTIFICATION AND REPORTING

A. The Contractor is responsible for identifying and bringing to the attention of the District’s Representative all activities that may result in a non-stormwater discharge prior to commencing with such work. Any uncontrolled non-stormwater discharge shall be reported to the District Representative immediately.

3.06 REMOVAL AND FINAL CLEANUP

A. Once the site has been fully stabilized against erosion, remove sediment control devices and all accumulated silt. Dispose of silt and waste materials in proper manner.
B. Provide post-construction erosion controls, including soil stabilization, in accordance with the Contract Documents. Materials subject to degradability shall have a minimal functional longevity of 12-months.

**END OF SECTION**
PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Equipment, products and materials shall be shipped, handled, stored, maintained and installed in ways which will prevent damage to the items. Damaged items will not be permitted as part of the work except in cases of minor damage that have been satisfactorily repaired and are acceptable to the District Representative.

B. Failure of Contractor to properly store and maintain equipment and materials will result in rejection of the equipment or material or a withholding from the progress payment.

C. Deliveries to the SRWTP must include the contract number and name of the project on all delivery manifests.

1.02 MATERIALS

A. Materials shall be handled, stored, and installed as recommended by the manufacturer. Pipes with paint, tape coatings, linings or the like shall be stored to protect the coating or lining from physical damage or other deterioration. Plastic pipes including PVC conduit shall be stored with UV protection until placed or installed. Pipes shipped with interior bracing shall have the bracing removed only when recommended by the pipe manufacturer.

1.03 EQUIPMENT

A. PACKAGE AND MARKING:

1. All equipment shall be protected against damage from moisture, dust, handling, or other cause during transport from manufacturer's premises to site. Each item or package shall be marked with the number unique to the specification reference covering the item.

2. Stiffeners shall be used where necessary to maintain shapes and to give rigidity. Parts of equipment shall be delivered in assembled or subassembled units where possible.
B. IDENTIFICATION:

1. Each item of equipment and valve shall have permanently affixed to it a label or tag with its equipment or valve number designated in this contract. Label or tag shall be of stainless steel. Location of label will be easily visible.

C. SHIPPING:

1. Bearing housings, vents and other types of openings shall be wrapped or otherwise sealed to prevent contamination by grit, dirt and water vapor.

2. Damage shall be corrected to conform to the requirements of the contract before the assembly is incorporated into the work. Contractor shall bear the costs arising out of dismantling, inspection, repair and reassembly.

D. STORAGE:

1. During the interval between the delivery of equipment to the site and installation, all equipment, unless otherwise specified, shall be stored in an enclosed space affording protection from weather, dust and mechanical damage and providing favorable temperature, humidity and ventilation conditions to ensure against equipment deterioration. Manufacturer's recommendations shall be adhered to in addition to these requirements.

2. Equipment and materials to be located outdoors may be stored outdoors if protected against moisture condensation. Equipment shall be stored at least 6 inches above ground. Temporary power shall be provided to energize space heaters or other heat sources for control of moisture condensation. Space heaters or other heat sources shall be energized without disturbing the sealed enclosure.

E. PROTECTION OF EQUIPMENT AFTER INSTALLATION:

1. After installation, all equipment shall be protected from damage from, including but not limited to, dust, abrasive particles, debris and dirt generated by the placement, chipping, sandblasting, cutting, finishing and grinding of new or existing concrete, terrazzo and metal; and from the fumes, particulate matter, and splatter from welding, brazing and painting of new or existing piping and equipment. As a minimum, vacuum cleaning, blowers with filters, protective shieldings, and other dust suppression methods will be required at all times to adequately protect all equipment. The protection of equipment shall also apply to disassembled equipment. During concreting, including finishing, all equipment that may be affected by cement dust must be completely covered. During painting operations, all equipment nameplates, grease fittings, and similar openings shall be covered to prevent the entry of paint. Electrical switchgear, unit substation, and motor load centers shall not be installed until after all concrete work and
sandblasting in those areas have been completed and accepted and the ventilation systems installed.

F. PREVENTIVE MAINTENANCE:

1. All equipment in storage and during and after installation shall be maintained by qualified Contractor personnel. Contractor shall set up a preventive maintenance program for all equipment. This program shall include as a minimum all manufacturer's recommendations and operation and maintenance manual requirements for the preventive maintenance of each piece of equipment including environmental, lubrication and rotation procedures. Record sheets of the preventive maintenance program shall be submitted to the District Representative monthly in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

1.04 SUBMITTALS

A. Prior to equipment delivery, Contractor shall submit pre and post installation preventive maintenance (PM) instructions recommended by the manufacturers for Major Equipment. Contractor shall conduct an ongoing monthly PM program during construction on all Major Equipment and any minor equipment requiring PM per the manufacturer's recommendations. The PM program shall be witnessed by the District Representative. Contractor shall monthly submit information in accordance with the SUBMITTAL PROCEDURES Section (01 33 00) on the status of all equipment in the PM program. Failure of Contractor to properly maintain the equipment shall result in rejection of the equipment or a withholding from the progress payment.

**END OF SECTION**
SECTION 01 73 33

RESTORATION OF IMPROVEMENTS

PART 1 -- GENERAL

1.01 STRUCTURES

A. Contractor shall remove existing facilities, including curbs, gutters, pipelines and utilities, as may be necessary for the work and shall replace the structures as good a condition as found. Existing facilities which may be damaged as a result of the work shall be repaired and restored.

1.02 ROADS

A. Unless otherwise specified, roads in which the surface is removed, broken, or damaged, or in which the ground has caved or settled shall be restored to the original grade and section. Roads used by Contractor shall be cleaned and repaired. Before pavement is placed, edges of pavements shall be sawcut to provide clean, solid, vertical faces, and shall be free of loose material. Repair work shall conform to the paving specifications.

1.03 CULTIVATED AREAS AND OTHER SURFACE IMPROVEMENTS

A. Cultivated or planted areas and other improvements which are damaged by Contractor shall be restored as nearly as possible to their original condition.

B. Existing guard posts, barricades, fences, and signs shall be protected and replaced if damaged.

1.04 RAILROAD TRACKS

A. Damage to railroad tracks, gates, switches or other equipment shall be repaired or replaced to the satisfaction of Union Pacific Railroad. Contractor shall document the existing condition before beginning work.

1.05 PROTECTION OF EXISTING INSTALLATIONS

A. Contractor shall immediately correct or replace existing equipment, controls or systems which are damaged.

1.06 REMOVAL OF EXISTING PIPING AND EQUIPMENT (DELETED)

1.07 MODIFICATION OF STRUCTURES

A. Contractor shall alter or rework existing concrete structures as shown and specified. Generally, when items of equipment and piping are removed, the areas and surfaces
from which items were removed shall be left with a neat appearance and finish compatible with surrounding areas, colors and surfaces. Holes and pipe and conduit penetrations in walls and slabs shall be filled with grout. Contractor shall do all painting, sanding, grouting, sacking, resurfacing, and other work as necessary. Prior to structural modifications, all surfaces shall be inspected by the District Representative. Colors shall match existing.

B. Contractor shall take care when handling materials to prevent dropping them into an operating tank, channel, conduit, pipeline or the like. Contractor shall notify the District Representative immediately if anything is added to any tank, channel, conduit, or pipeline.

1.08 CONNECTIONS TO HYDRAULIC STRUCTURES (DELETED)

**END OF SECTION**
SECTION 01 74 23

FINAL CLEANING

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. As a condition precedent to final acceptance or release of a structure, space or process unit for use by District, Contractor shall thoroughly clean all floors, ceilings, roofs, walls, woodwork, counters, sinks, fixtures and windows to leave same in first-class condition.

B. All pits and sumps shall be cleared of silt, sand, debris and construction materials. Ductwork, air intakes, and exhaust grilles shall be inspected and cleared of extraneous dust and material. All filters shall be replaced or cleaned to like new condition. All grounds shall be cleared of all debris and reseeded and restored to its original condition. Finish floors shall be thoroughly cleaned, sealed and given a final coat of wax. Blinds, all furniture and cabinets shall be dusted. Replace all burned out lamps.

C. Contractor shall not proceed with this work until authorized in writing by the District Representative.

**END OF SECTION**
PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE

1. Operation and Maintenance (O&M) instructions shall be provided in accordance with this section, when required in the technical specification sections.

2. O&M instructions shall be submitted and returned “No Exceptions Taken” or “Make Corrections Noted” prior to the start of on-site training and prior to start of reliability testing.

3. The District will accept electronic copies of any and all documents.

B. RELATED WORK:

1. The following specification sections are referenced herein:

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<thead>
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<th>Section</th>
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<tbody>
<tr>
<td>Section 00 62 05</td>
<td>PROPRIETARY INFORMATION AGREEMENT</td>
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<tr>
<td>Section 01 33 00</td>
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1.02 VALUES (NOT USED)

1.03 SUBMITTAL PROCEDURE FOR O&M INSTRUCTIONS

A. GENERAL:

1. Submittal procedure for O&M instructions varies from submittal procedure stated in Section (01 33 00). O&M instructions shall follow the submittal procedure as stated herein.

2. O&M instructions shall not be submitted before the subject equipment or material submittal has been approved. Equipment or material submittal approval is defined in Section (01 33 00). If O&M information is included with the equipment or material submittal, the submittal will be returned unreviewed.
3. Include sufficient time in the schedule for an initial District review of O&M instruction submittal and a minimum of one re-submittal review period.

B. PREPARATION:

1. O&M instructions shall be prepared for approved equipment or materials. O&M instruction submittal shall be reviewed and coordinated before submittal. O&M instruction submittal shall be complete and fully identified.

2. Each O&M instruction submittal shall contain documents which are related to only one equipment, material, product or system. Normally, a separate transmittal form shall be used for each specific item or class of equipment material, product or system. Exceptions may be allowed only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates checking or review of the group or "package" as a whole.

C. DISTRICT REVIEW:

1. Normally, the O&M instructions submittal will be returned within 10 working days, exclusive of any time awaiting clarification or further information. Submittal review may exceed 10 working days, depending upon the complexity of the submittal or the total number of submittals being processed simultaneously.

2. District’s Representative will return a submittal transmittal indicating one of the following four actions for each item number:

   a. If review and comment indicates no exceptions, the transmittal letter will be returned indicating "NO EXCEPTIONS TAKEN." District’s Representative will retain three copies of the approved O&M instructions.

   b. If review and comment indicates limited corrections are required, the transmittal letter will be returned indicating "MAKE CORRECTIONS NOTED." District’s Representative will retain three copies of the O&M instructions. Make the corrections indicated and submit copies of corrections for insertion and final acceptance by District’s Representative.

   c. If review and comment indicates insufficient or incorrect data has been submitted, the transmittal letter will be returned indicating "AMEND AND RE-SUBMIT" with an outline of deficiencies. One copy of the O&M instructions will be retained and the remaining two copies will be returned for revision. Revise the O&M instructions and re-submit two O&M instructions, plus one set of revisions for the copy retained by District’s Representative, with detailed insertion instructions for District’s Representative's review.

   d. If review indicates that the O&M instructions submittal is unacceptable, and will not be reviewed beyond the preliminary review stage, the transmittal letter will be returned indicating "REJECTED - SEE REMARKS." One copy of the
O&M instructions will be retained and the remaining two copies of the O&M instructions will be returned for revision. Revise the O&M instructions and re-submit two copies for District’s Representative's review, plus one set of revisions for the copy retained by District’s Representative, with detailed insertion instructions for District’s Representative’s review.

3. When submittal documents are referred to in these specifications as "approved," or "accepted," this means that they are stamped “NO EXCEPTIONS TAKEN”.

D. RE-SUBMITTALS:

1. Revise returned submittal documents as indicated and as required. Re-submit using the same submittal procedure as for an initial submittal. Use the previous submittal number with a letter suffix and refer to the previous item numbers.

2. Re-submittals shall address all comments from District’s Representative. Partial re-submittals may be returned "REJECTED." Contractor will be responsible for District’s Representative's review costs for each re-submittal in excess of the first re-submittal. These costs will be back charged and deducted from progress payments.

3. When O&M instructions are retained by the District’s Representative, submit revised data for insertion along with insertion instructions.

4. The District review time for re-submittals of O&M instructions shall be 40 working days.

PART 2 -- PRODUCTS

2.01 GENERAL REQUIREMENTS FOR O&M INSTRUCTIONS

A. GENERAL:

1. Each set of O&M instructions shall be assembled as described below. The subject equipment or material technical specification shall specify whether Type “A” or Type “B” O&M instructions are to be submitted.

2. The documents contained within each set of O&M instructions shall be grouped into tabbed sections. Each section shall have tabbed dividers marked with the tab number and title.

3. Each document in the O&M instructions shall include the equipment and associated auxiliary equipment numbers that it represents.

Manufacturer's standard documents shall be neatly marked with arrows to indicate the specific information which is applicable to the equipment, assembly,
subassembly or material supplied. Non applicable items shall be crossed out. Highlighting is not acceptable.

B. BINDING:

1. Each sets of O&M instructions shall be organized in the binders in numerical order by equipment number.

2. All documents shall have a binding edge of not less than 3/4 inch so that the information is not obliterated by the binding process.

C. QUANTITY:

1. Prepare and submit three copies of each set of O&M instructions for review.

D. QUALITY:

1. All O&M materials shall be made up of either original materials or a first generation photocopy accompanied by a matching electronic copy. Original materials shall be published literature or computer printouts with resolution of at least 600 dots per inch (dpi). Photo copies and FAX transmittals are not acceptable.

2. Minimum size lettering height on all O&M instructions shall be 12 point for typewritten documents, 1/16 inch height for 8-1/2 x 11 inch and 11 x 17 inch documents and 1/8 inch height for documents larger than 11 x 17 inches.

3. The District reserves the right to be the sole authority on quality and legibility of O&M materials.

E. OVERSIZE DOCUMENTS:

1. Documents which are larger than 8-1/2 inches by 11 inches shall be folded to fit within the 8-1/2 inch by 11 inch size of the binders. Each oversize document shall have reinforced holes. They shall be folded so that their title block is readable when folded and so that they can be unfolded without removal from the binder. Alternatively, the folded oversize document may be contained within an 8-1/2 inch by 11 inch envelope which is held in place by the binder.

2.02 TYPE “A” O&M INSTRUCTIONS

A. Type “A” O&M instructions shall be organized as follows:

1. COVER SHEET: The cover sheet shall show a function title of the equipment or material; list of the equipment number(s), including all associated auxiliary equipment number(s), and corresponding functional description(s); revision date; and specification reference
2. TAB 1 – TABLE OF CONTENTS: The table of contents shall give a detailed description of what is behind each tab, including applicable equipment numbers.

3. TAB 2 – REFERENCE DATA: The following information shall be contained behind this tab:
   a. Completed Equipment Maintenance Summary Form (Form 01730A) for equipment covered by the manual.
   b. Warranties and guarantees.

4. TAB 3 – TECHNICAL INFORMATION: A complete copy of the manufacturer’s standard O&M instructions manual for the equipment or material shall be provided.

5. TAB 4 – SUBMITTAL DATA: All items from the approved equipment or material submittal shall be provided.

2.03 TYPE “B” O&M INSTRUCTIONS (NOT USED)

PART 3 -- EXECUTION

3.01 CONTRACTOR RESPONSIBILITIES

A. Review O&M instruction submittals before they are transmitted to District’s Representative to ensure that they are complete.

B. Notify the District’s Representative when the submittal may concern work by another contractor or the District. Contractor is responsible for errors and omissions in submittals even though District’s Representative reviews the submittal.

C. District’s Representative shall be notified in writing at the time the submittal is transmitted of deviations from the requirements of the contract documents. Contractor is responsible for correcting deviations from the contract documents even though District’s Representative has reviewed the submittal, unless the deviations are clearly described in writing in the submittal transmittal form and are approved by District’s Representative.

D. Contractor may authorize a material or equipment supplier to deal directly with District’s Representative with regard to such submittals; however, ultimate responsibility for the accuracy and completeness of the information contained in the submittal shall remain with Contractor.

E. Coordinate O&M instruction submittals with the work so that work will not be delayed. Submittals shall be coordinated and scheduled into different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals.
Do not proceed with work related to a submittal until the submittal process is complete and the submittal document has been returned stamped "No Exceptions Taken".

**END OF SECTION**
PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. Project record documents (commonly known as “as-builts”) shall show the actual as-constructed conditions of installed or modified systems, equipment and material at the time of field acceptance of the related portions of work. The purpose of as-built documents is to provide accurate information for the future modification, expansion, operation and maintenance of the plant.

B. The project record documents are especially important for recording field conditions of embedded or concealed material and equipment. These embedded or concealed items shall include, but are not limited to, buried structures, thrust restraints, backfill material, piping, cables and raceways.

C. Work related to Field Instructions (FI), Contract Change Orders (CCO), Clarifications or other agreements between Contractor and the District Representative shall be considered part of the project record process. Contractor shall record conditions and/or changes relating to this work on the project record documents.

D. Project record documents shall clearly be shown as part of the CPM activity schedule.

E. Divisions 1 through 50 may contain additional project record document requirements which shall be met in accordance with the requirements of this section.

1.02 VALUES

A. Project record documents shall have a value of not less than one percent (1%) of the contract value. For additional work, the project record document value shall be determined by Field Instructions or Change Orders as outlined in the GENERAL CONDITIONS Section (00 72 00) of this contract. Project record documents for additional work shall meet all conditions of this section.

B. The value of project record documents as specified in the PROGRESS PAYMENT PROCEDURES Section (01 29 76) shall be distributed in the following categories with an associated drawing weight:
C. All contract drawings shall have equal weight. The number of drawings completed divided by the number of total drawings shall be used to determine the payments for project record drawings.

PART 2 -- PRODUCTS

2.01 DISTRICT-SUPPLIED DRAWINGS AND CONTRACT DOCUMENTS

A. The following District-supplied drawings, contract documents, and AutoCAD files are to be submitted in as-built condition for review by the District Representative:

1. Contract drawings and specification schedules.

2. Contract supplemental drawings, existing plant drawings, schedules affected by the work of this contract. These drawings and documents cover electrical distribution systems, electrical control panels, instrumentation panels, control panels, Area Control Centers (ACC), telephone systems, intercom systems, the sound powered telephone system, Process Control Centers (PCC), and terminal panels.

3. Drawings, agreements, tabulations, and schedules supplied by District as a result of Requests for Information (RFIs), Field Instructions (FIs), and Change Orders (COs).

2.02 CONTRACTOR-SUPPLIED DRAWINGS AND OTHER DOCUMENTS

A. The following Contractor supplied drawings, other contract documents, and AutoCAD files shall be submitted in project record condition for review by the District Representative:

1. Shop drawings generated by Contractor, sub-contractors, vendors or suppliers as defined in the SUBMITTAL PROCEDURES Section (01 33 00).

2. Programmable logic controllers (PLC) and analog controller program documentation with control and logic diagrams which have been submitted for construction.

3. Operation and maintenance manual documents, drawings, and schedules supplied by Contractor, subcontractors, vendors, or suppliers.
PART 3 -- EXECUTION

3.01 GENERAL

A. Contractor immediately upon setting up the job site field office shall set up a designated area for project record keeping. An accurate neatly marked complete set of full-size contract drawings, documents and shop drawings (including specifications and schedules) shall be designated as the as-built record set.

B. Contractor shall immediately start recording project record information upon doing any work.

C. Contractor shall keep those documents current with changes reflecting as-built status as construction proceeds.

D. Although some drawings are considered diagrammatic with respect to placement of conduit, piping, etc., Contractor must closely follow the routing shown. If there are deviations, Contractor must show the as-built conditions as work progresses and provide all changes to the project record documents with dimensions as outlined below:

1. Buried or embedded items within buildings, tunnels and other structures including but not limited to, piping, thrust restraints, electrical raceways, cables, duct banks, or other related appurtenances, in or under concrete, asphalt or soil, which are not placed as shown on the drawings, shall show as-built dimensions horizontally and vertically from a wall, formed footing, finish floor, ceiling or finish top of curb. Items placed in the center of concrete slabs do not need to have vertical dimensions.

2. All buried or embedded items as described above which are outside of buildings shall be tied to the plant survey grid system both horizontally and vertically with proper stationing, invert elevations and/or top of buried item. Survey data shall show all transition points (changes in direction, change in elevation, etc.). All items which are installed by horizontal or vertical curves shall show as-built curve data.

3.02 PROJECT RECORD KEEPING

A. All project record documents shall be marked-up copies, with erasable colored pencils using the following color coding:

1. Red - Additions including notes and dimensions.

2. Green - Deletions (By hash marks or appropriate lines through the deletion.)

3. Graphite - General comments and notes used by Contractor or District’s Representative and not required on the as-built.
4. Yellow - Work completed as shown and used by District’s Representative in field review of the as-built, during the submittal phase.

5. Blue - District’s Representative's office verification and notes required to be added and noted by District’s Representative in review of the as-built, during submittal phase.

B. All work shall be neatly organized and legible using the same standards and symbols as the original drawing.

3.03 MAINTAINING PROJECT RECORD DOCUMENTS

A. Contractor shall maintain a neatly marked full size set of project record documents. All District-supplied documents shall have shop drawing references clearly marked with clouds around the areas which are detailed on the shop drawing. Shop drawings referenced to other associated shop drawings shall have drawing references clearly marked with clouds around the area representing the shop drawing.

B. Abbreviation of the drawing Originator (Contractor, subcontractors, vendors or suppliers) referenced on the contract documents is unacceptable.

C. In areas where detail does not permit showing as-built conditions clearly on contract drawings but a shop drawing depicts actual as-built condition of the area, a cloud with shop drawing reference may be accepted at the District Representative's discretion. Otherwise all as-built conditions shall be shown on the contract drawings.

D. The project record documents and one copy of all approved shop drawings and one copy of the approved O&M instructions (per the OPERATION AND MAINTENANCE Data Section [01 78 23]) shall be kept in a central location on the job site providing access for all associated with the contract, for updating of as-built information and for review during normal business hours.

E. The project record documents shall be kept current using the mark-up procedures described herein. These documents shall be available for inspection by the District Representative at all times.

F. If project record documents are not kept current based upon weekly review by the District Representative, the current progress payment shall be limited as specified in the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

3.04 PROJECT RECORD SUBMITTAL PROCESS

A. GENERAL:

1. All project record documents shall be submitted electronically in accordance with the SUBMITTAL PROCEDURES Section (01 33 00) and the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26).
2. Project record documents shall be submitted showing the as-built conditions within 30 working days after completion of Clean Water Commissioning of an area or subsystem. Project record documents shall be completed and submitted prior to Substantial completion of each area or subsystem. Contractor shall compare all as-built documents with the actual field conditions and show the actual field conditions on the as-built documents before submitting them for review.

3. Project record submittals shall be rejected without any part being reviewed for any of the following reasons:
   a. Work has not been completed, including work related to Field Instructions, Change Orders, clarifications, or other agreements pending.
   b. Not all components and equipment have been properly labeled on the drawings. All equipment numbers (device and equipment number labeling codes) shall be shown on all drawings depicting the equipment. Equipment numbers must be coordinated with the plans and drawings and shown on all District-supplied and all contractor supplied drawings that depict equipment. The Contractor shall request equipment numbers from the District for all new equipment installed.
   c. Actual field conditions are not substantially shown on the documents.
   d. Drawing cross references are incomplete. District supplied drawings must be cross referenced to Contractor-supplied drawings and Contractor-supplied drawings must be cross referenced back to the District-supplied drawings.

B. PROJECT RECORD GROUPS AND SYSTEMS:

1. All project record documents shall be submitted together in the following logical groups or systems:
   a. All site drawings including survey data and data related to an area.
   b. All mechanical and piping related to an area, or by piping system. Process and Piping Schematics shall be submitted with the mechanical and piping package.
   c. All structural and architectural data related to an area.
   d. All electrical and instrumentation data related to an area, including Interconnection and Instrument Loop Drawings, together with all associated shop drawings and connection drawings; all related drawings found in the O&M manuals; process and Instrumentation diagrams.

C. PRELIMINARY REVIEW PROCESS:

1. In order to minimize the number of re-submittals, the following procedure shall be used:
a. Upon assembly of a project record submittal, Contractor shall notify the District Representative that the submittal is ready for review. Prior to review, a list of project record documents with all drawing numbers, descriptions and originators listed shall be submitted to District’s Representative for review. The District Representative will review the list of project record documents and meet with Contractor to review the submittal for completeness and accuracy. Contractor may be required to add or subtract some documents as directed by the District Representative to ensure a complete and reviewable package.

b. Some drawings may show work in several areas or systems. When this occurs, the list shall indicate this type of drawing. The area on this type of drawing which is to be reviewed as part of this submittal shall be clearly outlined by Contractor.

c. Documents that represent more than one area of work must be submitted for each area of work it represents and must receive approval for each area of work.

d. After the preliminary review, Contractor shall submit the as-built package with the necessary corrections for as-built review.

D. PROJECT RECORD SUBMITTALS FOR REVIEW AND COMMENTS

1. Contractor shall submit the original full size markups, one (1) set of full size copies of all District-supplied documents and two (2) sets of Contractor-supplied as-built record documents for each submittal or re-submittal as outlined in this section. One (1) set of Contractor supplied as-built documents shall be returned after each submittal review.

2. Contractor shall correct the original hard copy drawings and AutoCAD drawings once the District Representative has returned the marked up Contractor supplied documents "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED". Contractor shall then supply the mark-ups, and the AutoCAD drawing files electronically as part of the resubmittal package, along with a hard copy of the drawing files.

E. DOCUMENT IDENTIFICATION:

1. Each separately bound document within a submittal shall have the following information shown on it:
   a. Submittal number.
   b. Document item number within this submittal.
   c. Identification of product or material.
   d. Manufacturer's name.
F. COORDINATION AND SEQUENCE:

1. Contractor shall coordinate the submittals with the work as outlined in this section. No extension of time will be allowed because of failure to properly schedule as-built submittals as outlined in this section. The submittal will be returned to Contractor within forty (40) working days of receipt by the District Representative, exclusive of any time waiting for clarification or further information from Contractor. The time for return will vary and may exceed 40 days depending on the complexity of the submittal and the number of submittals.

G. PROJECT RECORD RE-SUBMITTALS:

1. Returned project record submittal documents shall be revised as indicated by the District Representative's comments as required. Re-submittal shall be done by using the same submittal number with an alpha suffix after the submittal number. Reference to the previous submittal number and item number is required when resubmitting. Re-submittals shall address all comments from the District Representative. Partial re-submittals will not be reviewed and will be returned in their entirety REJECTED. Contractor will be responsible for the District Representative's review cost for each re-submittal in excess of the first re-submittal. These costs will be back-charged to Contractor and will be deducted from the progress payment.

H. SUBMITTAL REVIEW:

1. GENERAL: The following are the four (4) possible Review Codes each document item can receive:

   a. "A" - NO EXCEPTIONS TAKEN: the as-built document is approved as is.
   
   b. "B" - MAKE CORRECTIONS NOTED: limited corrections are required. Copies will be returned with remarks as to corrections required.
   
   c. "C" - AMEND AND RESUBMIT: insufficient or incorrect data has been submitted or data is missing to complete the review. Copies will be returned with remarks requiring re-submittal with deficiencies corrected.
   
   d. "D" - REJECTED: Submittal is unacceptable and does not meet the requirements of these specifications, the document will be returned with remarks. A complete submittal may be REJECTED for excessive errors.

2. The Review Status and approval of District supplied drawings and documents shall be as follows:

   a. As-built drawings and documents which receive an "A" Review Status are approved as, as-built. District’s Representative will stamp the document As-Built, sign and date it. The document will not be returned to Contractor unless
it is a partial or tied to a related document which has not received an "A" status in the submittal.

b. As-built drawings and documents which receive a "B," "C" or "D" Review Status will be returned with comments indicating corrections needed.

c. Submittals of as-built AutoCAD drawings shall be subject to the same submittal requirements as other as-built documents.

3. The Review Status and approval of Contractor supplied drawings and documents shall be as follows:

a. As-built drawings and documents receiving an "A" Review Status are approved as, as-built. District’s Representative will stamp the document As-built, sign and date it. This document will be returned for AutoCAD update, as required.

b. As-built drawings and documents receiving an "B", "C", or "D" will be returned with comments directed at corrections needed.

c. Submittals of as-built AutoCAD drawings shall be subject to the same submittal requirements as other as-built documents.

3.05 PAYMENT

A. Payment shall be part of the progress payment schedule as outlined in the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

B. No partial payments shall be made for project record documents.

C. Only after all the project record documents for a work activity area have been submitted, received, reviewed and approved, will a progress payment be made.

D. Project record documents that include more than one area of work activity will only receive payment upon submittal and approval at the final area of work they represent.

E. Progress payments for Contractor supplied project record documents (including shop drawings) shall only be made for approved original documents and plotted AutoCAD drawings together with the electronic copy of the documents.

F. Progress payments for District-supplied documents shall be given for approved submittal only.

**END OF SECTION**
SECTION 31 41 00

SHORING

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. This section specifies requirements for sheeting, shoring, and bracing of trenches and structural excavations greater than 5 feet in depth. The Contractor shall design sheeting, shoring, and bracing in accordance with Title 8, Division 1, Chapter 4, Sub-Chapter 4, Article 6 of Cal/OSHA.

1.02 REFERENCES

A. The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

<table>
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<th>Reference</th>
<th>Title</th>
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<tr>
<td>Title 8Article 6</td>
<td>California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 4, Article 6 – Excavations</td>
</tr>
<tr>
<td>Section 6705</td>
<td>California Labor Code</td>
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1.03 SUBMITTALS

A. The following information shall be submitted for review for trenches and excavations deeper than five feet or those requiring support in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):

1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.

2. Contractor designed shoring system signed and stamped by a registered California Engineer. Calculations and design drawings shall be submitted for shoring systems for:

   a. Trench excavation
b. Structure excavation

3. MANUFACTURER'S DATA:
   a. Wood sheeting, plywood, dimensional lumber.
   b. Hydraulic shoring, screwjacks.

4. Qualified personnel resumes.

1.04 OPERATION AND MAINTENANCE INSTRUCTIONS (NOT USED)

PART 2 -- PRODUCTS

2.01 CONTRACTOR'S DESIGN

A. Contractor's design shall include access, barricades, shoring, bracing, sloping, benching, bulkheads, cofferdams, dewatering, and other items required to conform to CAL/OSHA Article 6. The design shall be prepared and signed by a registered civil engineer registered in the state of California for depths to 20 feet or a California registered structural engineer for depths greater than 20 feet.

B. The Contractor's attention is directed to the provisions for "Shoring and Bracing Drawings" in Section 6705 of the California Labor Code. The Contractor, prior to beginning any trench or structure excavation 5 feet deep or over shall submit to the District Representative and shall be in receipt of the District Representative’s written acceptance of the Contractor's detailed plan showing design of all shoring, bracing, sloping of the sides of excavation, monument monitoring, or other provisions for worker protection against the hazard of caving ground during the excavation of such trenches or structure excavation. If such plan varies from the shoring system standards established in the Construction Safety Orders of the State of California, such alternative systems plans shall be prepared and sealed by a civil or structural engineer licensed in the State of California.

C. The Contractor's attention is also directed to the California Code of Regulations, Title 8, Section 1541.1. The code requires when excavation is adjacent to an existing structure, a registered professional engineer must approve the determination that such excavation work will not pose a hazard to employees. It is the Contractor’s responsibility to hire a California Registered Civil Engineer to prepare analysis on trench safety, and to install all safety measures recommended by the Registered Engineer.

D. Excavation support systems shall be designed by the Contractor to support earth pressure, unrelieved hydrostatic pressure, utility loads, equipment, applicable traffic loads, and other surcharge loads in such manner as will allow safe construction and will prevent damage to adjacent structures (including existing pipelines and utilities) and injury to workers and the public. In addition, a shoring deflection analysis shall be
performed. The installation of excavation support system shall not cause a disruption to SRWTP operations or maintenance access. Design shall be prepared and sealed by a California registered Civil or Structural Engineer.

E. If utilized, all soldier piles shall be placed in pre-drilled holes and grouted in-place to a depth in accordance with the Contractor’s Plan.

F. The owner’s approval of the Contractor’s plans and methods of construction does not relieve the Contractor of the responsibility for adequacy of the design, installation or resulting trench support.

2.02 MATERIALS

A. Materials shall conform to the requirements of CAL/OSHA Article 6.

PART 3 -- EXECUTION

3.01 GENERAL

A. The construction of sheeting, shoring, and bracing shall not disturb the state of soil adjacent to or below the excavation bottom.

B. Horizontal strutting below the barrel of a pipe being installed is not acceptable. The pipe being installed shall not be used for support of the excavation.

3.02 INSTALLATION (NOT USED)

3.03 TESTING (NOT USED)

3.04 TRAINING (NOT USED)

3.05 SEQUENCE

A. Excavation of 5 feet or more shall not be started until the design of the sheeting, shoring and bracing system has been submitted in accordance with the SUBMITTAL PROCEDURES Section (01 33 00).

B. Excavations of less than 5 feet can be started only after the qualified supervisor (competent person as defined by OSHA) has inspected the ground and determined there is no potential cave-in hazard.

3.06 SUPERVISION

A. Work in an excavation of 5 feet or more shall at all times be under the immediate supervision of a qualified person who is authorized to modify the shoring or sloping in accordance with CAL/OSHA Article 6.
B. A qualified supervisor shall inspect the excavation, air quality, adjacent areas and protective equipment. Inspections shall be made daily, at shift start, and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard intensity occurrence.

3.07 ACCESS

A. A convenient and safe means of access shall be provided to enter and leave an excavated area. This shall consist of a stairway, ladder or ramp securely fastened in-place. For trenches 4 feet or more in depth, a safe means of access shall be provided and located so as to require no more than 25 feet of lateral travel.

3.08 CROSSINGS

A. When walkways or bridges are provided across excavated areas, they shall be provided with standard guardrail and toeboards when the depth of excavation exceeds 6 feet in depth and is more than 30 inches wide.

3.09 AIR QUALITY TESTING

A. The qualified supervisor shall test the atmosphere for oxygen deficiency and flammable gas concentrations before any person enters excavations greater than 4 feet in depth.

**END OF SECTION**
PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. SCOPE:

1. Furnish all materials, install all equipment, and provide all labor and tools necessary to complete the work shown on the drawings and listed below, as well as all other work and miscellaneous items not specifically mentioned but reasonably inferred. This includes all accessories and appurtenances required for a complete system. The intent of this document is to provide the specifications for a complete and functional cathodic protection system.

1.02 REFERENCES

A. REFERENCES STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

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<tr>
<td>B8</td>
<td>Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft</td>
</tr>
<tr>
<td>B267</td>
<td>Standard Specification for Wire for Use In Wire-Wound Resistors</td>
</tr>
<tr>
<td>B843</td>
<td>Standard Specification for Magnesium Alloy Anodes for Cathodic Protection</td>
</tr>
<tr>
<td>C94</td>
<td>Standard Specification for Ready-Mixed Concrete</td>
</tr>
<tr>
<td>D1248</td>
<td>Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable</td>
</tr>
<tr>
<td>D3032</td>
<td>Standard Test Methods for Hookup Wire Insulation</td>
</tr>
<tr>
<td>G97</td>
<td>Standard Test Method for Laboratory Evaluation of Magnesium Sacrificial Anode Test Specimens for Underground Applications</td>
</tr>
<tr>
<td>NACE</td>
<td>NACE International (Formerly National Association of Corrosion Engineers)</td>
</tr>
<tr>
<td>SP0169</td>
<td>Control of External Corrosion on Underground or Submerged Metallic Piping Systems</td>
</tr>
<tr>
<td>SP0207</td>
<td>Performing Close-Interval Potential Surveys and DC Surface Potential Gradient Surveys on Buried or Submerged Metallic Pipelines</td>
</tr>
<tr>
<td>SP0286</td>
<td>Electrical Isolation of Cathodically Protected Pipelines</td>
</tr>
<tr>
<td>TM0497</td>
<td>Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Piping Systems</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Electrical Manufacturers Association</td>
</tr>
<tr>
<td>250</td>
<td>Enclosures for Electrical Equipment (1000Volts Maximum)</td>
</tr>
<tr>
<td>TC2</td>
<td>Electrical Polyvinyl Chloride (PVC) Tubing and Conduit</td>
</tr>
<tr>
<td>TC3</td>
<td>PVC Fittings for Use with Rigid PVC Conduit and Tubing</td>
</tr>
<tr>
<td>LI1</td>
<td>Industrial Laminating Thermosetting Products</td>
</tr>
</tbody>
</table>
1.03 SUBMITTALS

A. The following information shall be submitted for review in accordance with SUBMITTAL PROCEDURES Specification Section: (01 33 00)

1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.

2. A complete list of cathodic protection material cutsheets, including name and manufacturer, anode and backfill material ASTM conformance and test results on chemical analysis, resistivity and gradation and all other pertinent data.

a. Galvanic Anodes

b. Pipe Lead and Bond Wire

c. Test Stations

d. Below Grade CP Test Boxes

e. Dielectric Unions

f. Pipe Flange Insulating Kit

g. Insulating Kit Internal Coating

h. Epoxy Putty

i. Plastic Warning Tape

j. Exothermic Weld Kits

k. Pin Brazing

l. Weld Coating

m. Concrete Mix Design
3. Contractor’s experience statement, Cathodic Protection Technician’s certificate and experience statement, and Corrosion Engineer or NACE Cathodic Protection Specialist certificate and experience statement.

4. Copy of contractor’s license number, experience statement, and contact information.

5. List of spare parts recommended for two years of successful operation.

6. Anode connection wire test results, including test method and equipment, anode number, conductor length and resistance.

7. Cathodic protection preoperational test and deficiencies report including the following:
   a. Dielectric union and insulating flange joint bolt-to-flange insulation resistance test results.
   b. Native pipe-to-soil and anode-to-soil potentials at each test station.
   c. Exothermic weld connection and lead wire resistance test results.
   d. Pipeline electrical continuity test parameters and results.
   e. Pipeline electrical isolation test results.

8. Cathodic Protection System operational test report conforming to NACE SP0169 including the following:
   a. “On” and “Instant Off” structure to soil potentials at each test station location.
   b. Current outputs of each anode.
   c. Anode bed operation, test station operation, and adherence to NACE SP0169.

9. As-built drawings detailing the actual locations of all conduits, anodes, wire connections and routings. Sub-meter GPS coordinates shall be provided for CTS locations. Final acceptance of the project will not be issued and the project shall be considered incomplete until as-built drawings are submitted and accepted by the District.

1.04 OPERATION AND MAINTENANCE INSTRUCTIONS (NOT USED)

1.05 QUALITY ASSURANCE
A. Installation of the cathodic protection equipment shall be supervised by individuals having at least five years of experience in the installation of cathodic protection equipment described herein.

B. Cathodic protection contractors must have completed the installation of a minimum of five successful cathodic protection anode projects within the past three years.

C. All testing required shall be performed by a Cathodic Protection Technician under the supervision of a Corrosion Engineer. The Cathodic Protection Technician refers to a person accredited or certified by NACE International at the level of Cathodic Protection Technician (i.e. NACE CP Level 2). Such a person shall have not less than five years of experience inspecting pipeline cathodic protection systems. A Corrosion Engineer is defined as a California Registered Professional Corrosion Engineer or a NACE International Certified Cathodic Protection Specialist. Such a person shall have not less than five years of experience inspecting pipeline cathodic protection systems. All test reports shall be signed and sealed by the Corrosion Engineer.

D. Maintain as-built drawings for the cathodic protection system throughout the installation of the equipment. Properly identify all items of equipment and material. Show the exact locations of all anodes, buried wires, CP test stations, and insulated pipe flanges using dimensional ties to existing structures or survey monuments and GPS locations measured with sub-foot accuracy. Record all changes by using a red pen on full size drawings.

PART 2 -- PRODUCTS

2.01 GENERAL

A. Provide cathodic protection system materials and equipment that are new, undamaged, and in the original packaging marked with the manufacturer’s name or trademark. The materials and equipment shall be of the manufacturer’s latest standard design and shall be fully compatible to provide a complete and functional cathodic protection system.

B. All materials must be of a quality generally accepted by the industry and must comply with the codes and standards as specified herein. Nothing in the Drawings or Specifications is to be construed as permitting work not conforming to the minimum requirements of these codes and standards. Where larger size or better grade materials than required by the above mentioned regulations and codes are specified, these Drawings and Specifications shall have precedence. All equipment and materials supplied shall be similar to that which has been in satisfactory service for at least 5 years.

2.02 RECTIFIERS (NOT USED)

2.03 MIXED METAL OXIDE PACKAGED ANODES (NOT USED)
2.04 POTTING COMPOUND (NOT USED)

2.05 CALCINED COKE BREEZE (NOT USED)

2.06 ANODE WELL SEALING MATERIAL (NOT USED)

2.07 TANK MONITORING TUBE (NOT USED)

2.08 ANODE CENTRALIZERS (NOT USED)

2.09 MAGNESIUM GALVANIC ANODES

A. High Potential Magnesium anodes shall be cast magnesium anodes in accordance with ASTM B843 Type M1C, with the following composition, percent by weight:

<table>
<thead>
<tr>
<th>Element</th>
<th>Percent by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>0.01 percent max</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.50 – 1.3 percent</td>
</tr>
<tr>
<td>Silicon</td>
<td>0.05 percent max</td>
</tr>
<tr>
<td>Copper</td>
<td>0.02 percent max</td>
</tr>
<tr>
<td>Nickel</td>
<td>0.001 percent max</td>
</tr>
<tr>
<td>Iron</td>
<td>0.03 percent max</td>
</tr>
<tr>
<td>Other metallic impurities, each</td>
<td>0.05 percent max</td>
</tr>
<tr>
<td>Others, total</td>
<td>0.30 percent max</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Remainder</td>
</tr>
</tbody>
</table>

B. The anode’s current capacity, as measured using the ASTM G97 standard test procedure, shall be minimum 480 amp-hours per pound. If anodes are of the cast type, the anode foundry or the anode retail supplier shall have a quality control program that includes random ASTM G97 testing. ASTM G97 current capacity tests shall be performed on randomly selected anodes at a minimum rate of one for every 2,500 anodes cast. Submit the ASTM G97 current capacity test results for the testing date that is closest to the production date of the anodes. All cast high potential magnesium anodes shall bear a stamp with its foundry heat number for traceability.

C. The anode shall be prepackaged in a permeable cloth bag filled with a mixture of 75% ground hydrated gypsum, 20% powdered bentonite and 5% anhydrous sodium sulfate. Backfill shall have a grain size so that 100% is capable of passing through a 100-mesh screen. The mixture shall be firmly packed around the anode within the cloth bag by means of adequate vibration so that the magnesium ingot is completely surrounded with a minimum 1-inch of backfill material.

D. Anodes shall be cast with a galvanized steel core. One end of the anode shall be recessed so that the core is accessible for the wire connection. The wire connection shall be mechanically secure before soldering and shall have at least one and one-half turns of wire at the connection. The coiled anode lead wire shall be silver soldered.
(45 percent silver) to the steel core. The core cavity shall be filled with an electrical sealing compound.

E. The wire attached to the anodes shall be No. 10 AWG stranded, single conductor, copper wire conforming to ASTM B3 and ASTM B8 with black THWN insulation. Connection of the wire to the anode shall have a pulling strength that exceeds the wire’s tensile strength. Anode wires shall be of one continuous length without splices from the anode connection to the test station.

F. Furnish Farwest Corrosion Control, UltraMag Series, or equal.

2.10 ZINC GALVANIC ANODES (NOT USED)

2.11 REFERENCE ELECTRODES (NOT USED)

2.12 WIRE

A. Conductors shall consist of stranded copper of the gage indicated. Wire sizes shall be based on American Wire Gage (AWG) and conform to the requirements of NEC. Copper wire shall be in conformance with ASTM B3 and B8.

B. All wires terminating in a test station terminal box shall have a wire identifier attached within 4 inches of end of wire at terminal board, prior to backfill, as specified herein or as shown in the details.

C. Buried wire shall have 7/64 inch thick HMWPE insulation specifically designed for cathodic protection service and suitable for direct burial in corrosive soil, conforming to ASTM D1248, Type I, Grade J3, Class C, Category 5 (HMWPE Type CP). Install bond wires at the minimum length required.

D. Buried pipe test wires wire shall be No. 8 AWG. Pipe test wires connected in manhole shall be No. 6 AWG.

E. Pipe joint bonding wire shall be No. 2 AWG.

F. A visual inspection of all wire shall be performed. Any wire with nicks, cuts, or other defects or damage in the insulation shall be rejected and immediately removed from the jobsite. If the integrity of any wire is in question, testing of the wire per ASTM D3032 for insulation-continuity proof shall be performed to the satisfaction of the District. Any wire that fails the insulation-continuity proof test shall be rejected and immediately removed from the jobsite.

2.13 WIRE IDENTIFICATION

A. Unless otherwise indicated on the Drawings, all wires shall be coded with heat shrinkable sleeve labels with a high resistance to oils, solvents and mild acids. The
A label shall fully encircle the wire with imprinted alpha numeric characters for pipe identification.

B. The following abbreviation schedule shall be used.

a. REF Reference Cell
b. ANODE Anode
c. BSP Black Steel Pipe
d. DCWSP Dielectrically Coated Welded Steel Pipe
e. CML&C Cement Mortar Lined and Coated Steel Pipe
f. DIP Ductile Iron Pipe
g. GSP Galvanized Steel Pipe
h. CASE Steel Casing
i. SPAN Span Wire on Line Current Test Station
j. IJ/P Protected Side of Isolation Flange
k. IJ/U Unprotected Side of Isolation Flange

2.14 TEST STATIONS

A. POST MOUNTED TEST STATION:

1. The test station terminal box and internal components shall be as specified for flush-to-grade test stations.

2. Utility tunnel conduit shall be 1-1/4-inch diameter galvanized rigid steel conduit per UL 6. Fittings shall be galvanized rigid steel per UL 514.

3. Buried conduit shall be SCH 40 PVC per NEMA TC2 and fittings per NEMA TC3 with long radius sweeps.

4. Retention cross bar shall be No. 3 GFRP rebar, minimum 14 inches in length.

5. Center post shall be high-density polyethylene (HDPE) with added ultraviolet light stabilizers. The center post shall be sized as shown on the drawings.
6. Concrete column shall consist of reinforced concrete with nominal dimensions of 18-inch diameter by 24-inch deep. The column shall be constructed of 4,000-psi ready-mix concrete in accordance with ASTM C94 using No. 4 hoops and No. 5 bar.

B. FLUSH-TO-GRADE TEST STATION:

1. Traffic valve boxes shall be rated to withstand AASHTO H20 loading. Traffic box covers for test stations shall be cast iron with welded bead legend and labeled “CP TEST” or “ANODE” as required. The traffic valve boxes shall be G5 Utility Boxes, as manufactured by Christy Concrete Products, Inc., No 3RT Utility Box, as manufactured by Brooks Products, or approved equivalent.

2. The traffic box shall have a concrete collar at unpaved sites. The collar shall consist of a reinforced concrete pad with nominal dimensions of 24-inch square by 6-inch thick concrete, constructed of 4,000-psi ready-mix concrete per ASTM C94 with No. 4 reinforcing bar.

3. Buried conduit shall be SCH 40 PVC per NEMA TC2 and fittings per NEMA TC3 with long radius sweeps.

4. The test station terminal box inside the enclosure, unless otherwise indicated or specified on the Drawings, shall be a Big Fink as manufactured by Cott Manufacturing Company, Model T-3 as manufactured by Tinker & Rasor or equal.

   a. The terminal board enclosure shall be made from Makrolon or Lexan polycarbonate and color coded to match the APWA Uniform Color Code and the safety colors in the ANSI Z535.1 for the corresponding pipeline service.

   b. The terminal board shall be made of Makrolon or Lexan polycarbonate and the color black or clear. The terminal board shall have a minimum of eight wire connection terminals having nickel-plated brass hardware.

   c. Shunts shall be 0.01 ohms resistance rated at 8 amp current mounted on Makrolon or Lexan polycarbonate circuit boards with nickel-plated brass components. The resistance wire shall be manganin per ASTM B267. Terminal holes shall be 1/4-inch diameter and 1 inch on center. The overall shunt dimensions shall allow easy connection to the terminal board. Use yellow COTT shunt as manufactured by Cott Manufacturing Company, yellow shunt as manufactured by Tinker & Rasor, or equal.

   d. A Schedule 40 PVC lead-in conduit shall be attached to the bottom of the test station terminal box enclosure. This conduit shall have a minimum length of 3 inches and de-burred edges to prevent chaffing of the wire insulation.

2.15 JUNCTION BOXES (NOT USED)
2.16 EXOTHERMIC WELDS

A. Wire connections to the pipe shall be accomplished utilizing an exothermic welding process where indicated. Each wire shall be fitted with a copper sleeve for accomplishing the weld if required by the manufacturer. Cartridge, sleeves and molds for each weld shall be furnished by the same manufacturer. All materials for welding shall be sized in accordance with recommendations in manufacturers' literature. Exothermic welds shall be "Cadweld" by Erico Products, Inc., "Thermoweld" by Continental Industries, Inc., or approved equal. Duxseal packing as manufactured by Johns-Manville or equal shall be used where necessary to prevent leakage of molten weld metal.

B. The shape and charge of the exothermic weld shall be chosen based on the following parameters:

1. Pipe material
2. Pipe size
3. Wire material/size and requirement for sleeves
4. Number of strands to be welded
5. Orientation of weld (vertical or horizontal)

2.17 PLASTIC WARNING TAPE

A. Warning tape shall be 4-mil thick and 6-inch wide yellow inert plastic film with 3-inch high black lettering with the words "CAUTION, CATHODIC PROTECTION CABLES BURIED BELOW." This should be printed at a minimum of 7 foot intervals along the entire buried length of the cable.

2.18 EPOXY PUTTY

A. Epoxy putty used for sealing wire-to-pipe connections shall be Propoxy 20 as manufactured by the Hercules Chemical Company or approved equal.

2.19 INSULATING FLANGED JOINTS

A. General: Insulating flange kits shall consist of Type E, full face sealing element retainers, insulating sleeves and double washers (steel and dielectric) on each end. All insulating material shall be of the type designated by the manufacturer as suitable for the operating temperature and pressure of the service. All components shall be the product of a single manufacturer.
1. Insulating Retainer and Sealing Element: NEMA grade G-10 epoxy glass containing a precision groove to accommodate a rectangular nitrile (Buna-N) o-ring sealing element. Minimum total thickness shall not be less than 1/8-inch. Dielectric strength shall be not less than 550 volts per mil, and compressive strength of not less than 50,000 psi.

2. Sleeves: Use 1/32-inch thick G-10 epoxy glass tube material as per NEMA LI 1. Dielectric strength shall be not less than 400 volts per mil. The length of the sleeve is a critical requirement. The required length is equal to the distance from one flange to the other (including gasket thickness) plus twice the insulating washer thickness plus the thickness of two steel washers minus 1/16-inch. For installation on threaded bolts, i.e., at butterfly valve flange bonnets and bases, the sleeves shall be half length. Provide four extra insulating sleeves in case some are cracked during installation.

3. Washers: 1/8-inch thick G-10 epoxy glass sheet material. Dielectric strength shall not be less than 550 volts per mil, and compressive strength of not less than 50,000 psi. Provide eight extra insulating washers to avoid installation delays commonly associated with components damaged during the installation process.

4. Steel Washers: 1/8-inch thick cadmium plated or zinc plated carbon steel. The inside diameter of the steel washers shall be a minimum of 1/16-inch larger than the outside diameter of the insulating sleeves to prevent binding. For flanges with bolt sizes of 1-1/4-inch and larger, two steel washers shall be ordered for each side so that the insulating washer can be “sandwiched” between the two for additional support.

5. Provide four extra insulating sleeves and eight extra insulating washers for each insulating flange upon successful inspection of the insulating flange by the District.

6. Internal Coating: (NOT USED).

**2.20 DIELECTRIC UNIONS**

A. For insulating unions, use a molded nylon sealing sleeve mounted in a three-piece malleable (ASTM A47 or A197) body. Use threaded ends (ANSI B1.20.1) when connecting to steel piping, and copper solder joint when connecting to copper piping. Minimum working pressure shall be 150 psi. Furnish Central Plastics, Insulated Union #1005xxx Series or Equal.

**2.21 WAX TAPE (NOT USED)**

**2.22 WELD CAPS**

A. Weld caps shall be 4-inch square prefabricated assemblies designed for sealing exothermically welded or pin-brazed test leads. The exterior shall be minimum 10-mil
thick plastic sheet formed with an igloo shaped dome and entry tunnel for the lead wire. The plastic dome interior shall have a malleable elastomeric compound soft enough to mold itself around and completely cover the irregular welded profile. The interior surface shall have an adhesive with integrated primer. Weld caps shall be Royston Handy Cap IP, as manufactured by Royston Laboratories, Inc.; thermOcap PC Weld Cover, as manufactured by thermOweld; or equal.

2.23 PIN BRAZING

A. Pin brazing shall be provided for connecting wires to structures in strict accordance with the manufacturer’s recommendations. The pin brazing unit shall use an electric-arc silver soldering process specifically designed to minimize the structure heat effects associated with the wire connection process. The brazing gun ferule holder shall be sized accordingly to accommodate the brazing pin and ferule. The brazing pin shall be a direct-connect type, with no threaded connections. The ferrule shall be ceramic and sized accordingly to accommodate the brazing pin. The wire lug shall be the brazed connection type; crimp lugs shall not be allowed. The wire lug shall be type M1. The brazing pins shall be type “Direct Brazing pin, standard with fuse wire” for brazing No. 6 AWG wire and smaller. The brazing pins shall be type “Direct Brazing pin, extra solder with fuse wire” for brazing No. 4 AWG wire and larger. All pin brazing hardware and consumable material shall be the product of a single manufacturer. Pin brazing shall be “BAC Pin Brazing” by BAC Corrosion Control or “Safetrack® Pinbrazing” by Safetrack Baavhammar AB.

2.24 ELECTRICAL RESISTANCE PROBES (NOT USED)

2.25 WALL PENETRATIONS

A. Provide two-part epoxy coating suitable for application to concrete and bentonite.

B. Provide linked pipe seal properly sized for the wall penetration and conduit size.

C. Provide cementitious waterproofing grout filling suitable for contact with PVC and epoxy.

D. Provide bentonite paste suitable for contact with cementitious waterproofing grout.

PART 3 -- EXECUTION

3.01 GENERAL

A. STORAGE OF MATERIALS:

1. All materials and equipment to be used in construction shall be stored in accordance with the PRODUCT DELIVERY REQUIREMENTS Specification
Section (01 65 00), and in such a manner to be protected from detrimental effects from the elements.

B. INTERFERENCE AND EXACT LOCATIONS:

1. The locations of cathodic protection equipment, test stations, devices, outlets and appurtenances as indicated are approximate only. Exact locations shall be determined by the Contractor in the field subject to approval by the District.

3.02 INSTALLATION

A. RECTIFIER (NOT USED)

B. IMPRESSED CURRENT ANODE INSTALLATION – DISTRIBUTED SHALLOW ANODE HOLES (NOT USED)

C. IMPRESSED CURRENT ANODE INSTALLATION - DEEP ANODE WELL (NOT USED)

D. GALVANIC ANODES

1. Prepackaged anodes shall be installed at the locations as shown in the drawings after excavation to proper depth, a minimum of 5 feet from the pipeline.

2. Prior to placing anodes in the trench, paper or plastic bags shall be removed, but the cloth bag shall remain around the anode. Care shall be exercised during installation to prevent damage to the cloth bag and loss of backfill material.

3. After placing anodes, native soil—free of rocks and other foreign objects—shall be placed around the anode to a minimum cover of one foot above the anode. Backfill shall then be saturated with a minimum of 10 gallons of potable water. Backfilling with native soil shall proceed in 6 inch lifts. The soil around the anode shall be compacted during each lift until the backfill has reached grade. Under no circumstances shall cement slurry be allowed for backfill within three feet of the anode. Anodes shall not be backfilled prior to inspection and approval. Backfill and compaction shall match the existing conditions and shall be approved by the District.

4. During installation, anodes shall not be supported or handled by use of attached wires. Damage to the canvas bag, anode-to-wire connection, copper wire or wire insulation will require replacement of the entire assembly.

5. Trench all anode wires in SCH 40 PVC electrical conduit to the test station as shown on the Drawings. Anode lead wires shall be installed as shown in the Drawings and attached to the panel board.
E. REFERENCE ELECTRODES (NOT USED)

F. WIRES

1. Wires buried in the ground shall be laid straight, without kinks. Each wire run shall be continuous in length and free of joints or splices. Care shall be exercised during installation to avoid punctures, cuts, and similar damage to insulation. Any damage to insulation will require replacement of the entire wire length. Pull boxes and splice boxes shall be installed where shown and where otherwise required to facilitate installation of conductors and to comply with code requirements. Backfill surrounding the wires shall be native soil free of foreign materials and rocks.

2. At least 12 inches of coiled slack shall be left for each conductor at each test station housing. Slack in the wire shall be sufficient to allow removal of wire extension for testing. Wire shall not be bent into a radius of less than eight times the diameter of the wire.

3. For all horizontal buried wire runs and vertical runs to test station, route wires in PVC conduit along entire length of wires. Where buried wire is to be placed in existing conduit, the conduit shall be of sufficient diameter to accommodate the additional wire. This shall be determined by the number and size of both the existing and new wire in accordance with all applicable codes and standards. This shall also apply where new wire is to be installed in new PVC conduit. PVC conduit shall be installed to a minimum depth of 24 inches below grade. Where physical obstructions that are not movable do not permit the depth of the conduit to be 24 inches or greater, the conduit may be placed at the lowest possible depth and encased in cement slurry.

4. Install caution tape above buried wire and conduits at a maximum depth of 12 inches below grade over the wire and conduit location. Every 3 feet, double-over the tape for a distance of 8 inches to increase the apparent flexibility of the tape.

G. JOINT BONDS

1. Conduct electrically discontinuous joint location testing per this Specification Section. Submit the test results to the District for concurrence on the number and locations of the electrically discontinuous joints.

2. At the agreed-upon locations and only upon authorization by the District, bond wire shall be provided across electrically discontinuous joints. Joint bonds shall be installed as indicated. Do not bond across insulating flange joints.

H. WALL PENETRATIONS
1. Field locate the existing utility tunnel reinforced concrete wall at locations nearest the new post mounted test stations.

2. Perform wall penetrations as shown in the Drawings. Each wall penetration shall only accommodate one test station installation. Follow the printed manufacturer directions for the two-part epoxy coating, linked pipe seal, waterproofing grout filling, and bentonite paste.

3. Transition PVC conduit to RGS conduit on the interior of the utility tunnel within 12 inches of the penetration. Secure the RGS to the wall, floor, and existing test station post.

4. The installed condition shall not allow water to enter the tunnel from the penetrations. This requirement includes both the interior and exterior of the PVC conduit as well as all other components of the penetrations. The Contractor shall repair all leaking wall penetrations at no additional contract cost.

I. TEST STATIONS

1. Post Mounted Test Station:

   a. Install test stations at locations designated on the drawings. Exact locations of test stations shall be determined by the District in the field. The terminal end of each wire shall be identified with permanent wire markers indicating diameter and type of pipe.

   b. Center and drill out the cross bar retention holes within 3 inches of the bottom of the HDPE post. Center the cross bar through the post and epoxy the penetration to prevent the cross bar from moving.

   c. Place the cross bar a minimum of 12 inches below the bottom of the concrete column. Cast concrete column as shown on the drawings. Dome concrete to prevent water ponding.

   d. Terminate the utility tunnel PVC conduit inside the center post a minimum of 6 inches above the top of the concrete column. Apply duxseal at the termination of the utility tunnel PVC conduit.

   e. The final height of the test box shall be 5 feet above final grade. Ensure the post is plumb in all directions.

2. Flush-To-Grade Test Station:

   a. Install test stations at locations designated on the drawings. Exact locations of test stations shall be determined by the District in the field. The terminal end of each
wire shall be identified with permanent wire markers indicating diameter and type of pipe.

b. Place bottom of test box on native soil. Do not place rock, gravel, sand, or debris in box.

c. Route wires to the terminal board with PVC collar as shown on the Drawings. Connect each wire to the terminal board using copper ring tongue connectors, crimped and soldered to each wire. Attach terminal board cover. Place terminal board enclosure in concrete test box upright, as shown on the Drawings.

d. Install 4,000-psi concrete collar with reinforcement after placement of the test box to finished grade as detailed in the Drawings. Provide sufficient sloping in the concrete pad or surrounding pavement to provide drainage away from the concrete test box.

e. After installation, all wire connections shall be tested in the test station as required by the Contractor, to ensure that they meet the requirements of the specifications.

J. JUNCTION BOXES AND BOND BOXES (NOT USED)

K. EXOTHERMIC WELD CONNECTIONS

1. Exothermic weld connections shall be installed in the manner and at the locations indicated in the Drawings. Coating materials shall be removed from the surface over an area of sufficient size to make the connection. The surface shall be cleaned to bare metal by grinding or filing prior to welding the conductor. The use of resin impregnated grinding wheels will not be allowed. A copper sleeve shall be fitted over the conductor. Only enough wire insulation shall be removed such that the copper conductor can be placed in the welding mold.

2. Exothermic weld connections to ductile iron pipe shall use Erico Type XF weld metal and Type HB molds for cast iron pipe or approved equal.

3. All materials shall be furnished, surfaces cleaned, and protective coatings repaired on both clean surfaces and surfaces damaged as a result of the welding. Repair of any coating damaged during welding shall be performed in accordance with coating manufacturer’s recommendations.

4. All exposed surfaces of the copper and steel shall be covered with insulating materials.

5. For dielectrically coated pipes a plastic weld cap shall be applied to all exothermic weld locations. The plastic weld cap and all metal exposed by the Contractor shall be covered with a bitumastic coating. All surfaces must be clean, dry and free of oil, dirt, loose particles and all other foreign materials prior to application of the
coating. Coating repairs shall be performed in accordance with coating manufacturer’s recommendations.

6. For mortar coated pipes, an epoxy putty shall be applied to all wire to pipe connections and the epoxy putty shall be covered with mortar. The mortar shall match the exterior mortar. Coating repairs shall be performed in accordance with coating manufacturer’s recommendations.

L. PIN BRAZING CONNECTIONS

1. Pin brazing connections shall be installed in the manner and at the locations indicated. Coating materials shall be removed from the surface over an area of sufficient size to make the connection. The surface shall be cleaned to bare metal by grinding or filing prior to welding the conductor. The use of resin impregnated grinding wheels will not be allowed. The conductor shall be brazed to the pipe using the manufacturer’s recommended materials and equipment.

2. Remove only enough wire insulation such that the copper conductor can be placed in the lug. Solder the lug-wire connection after high-strength crimping.

3. All test lead and bond wire brazements shall be tested. The District shall witness these tests.

4. After the brazement has cooled, all pin remnants and ferrule fragments shall be removed and the metallurgical bond shall be tested for adherence. A 22 ounce hammer shall be used for adherence testing by striking a blow to the brazement. Care shall be taken to avoid hitting the wires. All defective brazements shall be removed and replaced.

5. Repair any coating damaged during brazing in accordance with coating manufacturer’s recommendations.

6. All exposed surfaces of the copper and steel shall be covered with insulating materials.

7. For dielectrically coated pipes a plastic weld cap shall be applied to all exothermic weld locations. The plastic weld cap and all metal exposed by the Contractor shall be covered with a bitumastic coating. All surfaces must be clean, dry and free of oil, dirt, loose particles and all other foreign materials prior to application of the coating. Coating repairs shall be performed in accordance with coating manufacturer’s recommendations.

8. For mortar coated pipes, epoxy putty shall be applied to all wire to pipe connections and the epoxy putty shall be covered with mortar. The mortar shall match the exterior mortar. Coating repairs shall be performed in accordance with coating manufacturer’s recommendations.
M. WIRE IDENTIFIERS

1. All wires shall be coded with wire identifiers specified herein. Wire identifiers shall be placed on the wires prior to backfill.

N. INSULATING FLANGED JOINTS

1. All insulating components of the insulating flanged gasket set shall be cleaned of dirt, grease oil and other foreign materials immediately prior to assembly. If moisture, soil, or other foreign matter contacts any portion of these surfaces, disassemble the entire joint and clean with a suitable solvent. Dry the entire joint. Once completely dry, reassemble the joint.

2. Care shall be taken to prevent any excessive bending or flexing of the gasket. Creased or damaged gaskets shall be rejected and removed from the job site.

3. Bolt holes in mating flanges shall be properly aligned at the time bolts and insulating sleeves are inserted to prevent damage to the insulation. Follow the manufacturer's recommended bolt tightening sequence. Center the bolt insulating sleeves within the insulation washers so that the insulating sleeve is not compressed and damaged.

4. After flanged bolts have been tightened, each insulating washer shall be inspected for cracks or other damage. All damaged washers shall be replaced.

5. When the flange is determined to be properly functioning to the full satisfaction of the District, approval will be granted to proceed with installation. Do not proceed with coating, lining, or backfilling the insulating joint prior to gaining approval to proceed. If the coating or lining is applied prior to gaining approval to proceed, the coating or lining shall be completely removed to the satisfaction of the District at the Contractor’s expense. If the insulating joint is backfilled prior to gaining approval from the District, the Contractor shall completely excavate the insulating joint at the Contractor’s expense.

O. WAX TAPE COATING (NOT USED)

P. DIELECTRIC UNIONS

1. Insulating unions shall be installed at the indicated locations. The pipe ends shall be cut square, all fins and burrs shall be removed and pipe threads shall be tapered in accordance with ANSI B1.20.1. Joint compound or thread tape shall be applied to male threads only. The piping shall be worked into place without springing or forcing. Backing off to permit alignment of threaded joints will not be permitted. The threads shall be engaged so that not more than three threads remain exposed.

Q. ELECTRICAL RESISTANCE PROBES (NOT USED)
R. RESTORATION OF SURFACES

1. Compaction of backfill for pipelines, anodes, and trenches shall match the existing conditions.

2. Restoration of Sod: Restore unpaved surfaces disturbed during the installation of anodes and wires to their original elevation and condition. Preserve sod and topsoil carefully and replace after the backfilling is completed. Replace sod that is damaged using sod of quality equal to that removed. Where the surface is disturbed in a newly seeded area, re-seed the area with the same quality and formula of seed as that used in the original seeding.

3. Restoration of pavement: Patch pavement including asphalt, concrete, sidewalks, curbs and gutters where existing surfaces are removed for construction. Restore all pavement to the original elevation and to a quality equal to or better than the pavement that was removed. All concrete shall adhere to ASTM C94.

3.03 TESTING

A. GENERAL

1. Perform all testing necessary to correctly identify the existing test stations and structure connections shown in the Contract Documents.

2. Upon completion of installation of all components as shown on the Drawings and in accordance with these Specifications, testing shall be performed to demonstrate that the installation has been completed and is in working order in conformance with the Contract Documents. In no case shall the testing be less than that outlined herein unless requested in writing by the Contractor and accepted by the District. The testing described herein shall be in addition to and not substitution for any required testing of individual items at the manufacturer’s plant.

3. The Contractor shall supply a written test procedure of each test to the District for quality control testing of the corrosion control system prior to conducting any testing. The Contractor shall provide intermediate testing of the system during installation. The Contractor shall notify the District at least five days in advance of any testing.

4. The test data shall be submitted to the District Representative for acceptance to demonstrate that the system is in proper working order.

5. The cost of the testing shall be borne by the Contractor, including any additional expenses that result from retesting due to equipment or installation that is not in conformance with the Contract Documents.

6. Additional testing may be performed by the District.
7. Any deficiencies identified shall be reported to the District and repaired by the Contractor, at the Contractor's expense. Retesting by the Contractor shall be scheduled such that the District is given at least 24 hours notice prior to retesting.

B. PREOPERATIONAL TESTING

1. GALVANIC SYSTEM:

   a. Verify proper operation of all dielectric fittings as determined by the Corrosion Engineer to ensure conformance with the specifications. Any dielectric fittings which are found to be defective shall be re-insulated and re-tested in order to achieve proper isolation.

   b. Upon completion of anode installation, test the open-circuit potential of each anode with a copper sulfate reference electrode. If any installed zinc anode has a potential more electropositive than -1.0 Volt, the anode is to be replaced at the Contractor’s expense. If any installed high potential magnesium anode has a potential more electropositive than -1.7 Volts, the anode is to be replaced at the Contractor’s expense. All testing procedures and results are to be verified by the District before acceptance.

2. WIRE INTEGRITY:

   a. All test lead and bond wire welds shall be tested. The District shall witness these tests.

   b. After the exothermic weld or pin brazement has cooled, the metallurgical bond shall be tested for adherence. A 22 ounce hammer shall be used for adherence testing by striking a shearing blow to the weld or brazement. Care shall be taken to avoid hitting the wires. All defective welds or brazements shall be removed and replaced.

   c. The District shall be given the opportunity (two days advanced notice) to verify that buried pipe lead wires and anode lead wires are properly identified with brass tags or heat shrinkable label prior to backfilling the wires and the welded wire-to-pipe connections.

   d. After backfilling pipe, all test lead pairs shall be tested for broken welds using a standard ohmmeter. The resistance shall not exceed 125% of the theoretical wire resistance, as determined from published wire data.

3. INSULATING FLANGE JOINTS:

   a. Test all insulating flanges in the presence of the District. At the option of the District, additional testing may be performed by the District prior to approval. All insulating flanges must be tested and approved prior to proceeding. Any insulating
flange that is not functioning as indicated by the test data and verified by the District shall be considered deficient and shall be repaired and retested at the Contractor's expense. The effectiveness of insulating flanges shall be determined using the following test techniques in the order shown until one of the criteria is achieved or as otherwise directed by the District. Radiofrequency testers may be used during troubleshooting, but validation of isolation shall be by the test methods listed below.

1) Electrical Potential Difference Test: Electrically bond the pipe on the vault or unburied side of the insulating flange to an electrical ground with a maximum resistance to remote soil of 5 ohms. If the pipe on both sides of the insulating flange is mechanically connected to a minimum 50 feet of buried pipe, then the pipe does not need to be bonded to an electrical ground for this test. Measure the CP Potential of the pipe on both sides of the insulating flange using a copper/copper sulfate reference electrode located at an electrically remote location (minimum 50 feet from the pipe). If the difference in CP Potentials is greater than or equal to 500 millivolts, the insulating flange is providing adequate electrical isolation. This test must be performed with all cathodic protection systems and anodes disconnected from the pipeline. If this criterion is not met, perform the Nilsson 400 Meter Direct Resistance Test to verify the effectiveness of the insulating flange.

2) Direct Resistance Test: Measure the electrical resistance across the insulated flange using a 97 Hertz square wave null balancing ohmmeter such as the Model 400 Nilsson Soil Resistance Meter and the four-wire resistance technique. A standard handheld digital multi-test meter's ohmmeter circuit (e.g. Fluke 97 or Beckman HD110) is not suitable for properly making these resistance measurements. Perform this test by connecting the meter’s P1 and C1 terminals to one side of the insulating flange, using two wires, and then connecting the meter’s P2 and C2 terminals to the other side of the insulating flange, using two additional wires. Use vise grips or temporary exothermic welds to make the wire connections to the flange or pipe. The criterion for a pipe filled with water is a minimum measurement of 5 ohms. The criterion for a dry or a partially filled pipe is a minimum measurement of 100 ohms. If none of the applicable criteria are met, perform the Inductive Ammeter Direct Resistance Test to verify the effectiveness of the insulating flange.

3) Inductive Ammeter Direct Resistance Test: Connect two separate wires via two separate connections to the pipe on both sides of the insulating flange. Use vise grips or temporary exothermic welds to make the wire connections. Use two pairs of test wires, one for current flow, one for voltage measurement. Using the first set of test wires, apply a minimum 12 volt dc electrical current across the insulating flange. Using the second set of test wires, measure the voltage across the insulating flange developed by the dc current flow. Use an inductive ammeter hoop (e.g. Swain hoop) clamped around the pipe immediately
adjacent to the insulating flange to measure the change in dc current flow in the pipe, through the insulated flange. Calculate the electrical resistance across the insulating flange in Ohms by dividing the change in dc volts by the change in dc amps (i.e. Ohm's Law). The criterion for a pipe filled with water is a minimum measurement of 5 ohms. The criterion for a dry pipe is a minimum measurement of 100 ohms. If either of the applicable criteria is not met, perform the NACE Insulating Flange Leakage Test, per NACE SP0286, to verify the effectiveness of the insulating flange.

4) NACE International Insulating Flange Leakage Test: This test procedure shall conform to the "Leakage Test" described in the NACE International SP0286, Section 9, "Field Testing and Maintenance", Figure 12. The test current used shall be between 3 and 5 dc amps. The criterion for a pipe filled with water is a maximum “electrical leakage value” of 10 percent of the test current. The criterion for a dry pipe is a maximum “electrical leakage value” of 5 percent of the test current.

5) Individual Flange Bolt Electrical Resistance Testing: For all insulated flanges to be buried and for all other insulating flanges that do not meet any of the other criteria, measure the electrical resistance of each flange bolt to both sides of the insulated flange using a Nilsson Model 400 Soil Resistance Meter and four-wire resistance technique. The measured resistance value for each flange through-bolt shall be a minimum of 1,000 ohms, as measured from each bolt to both flanges. This criterion applies to flange through-bolts and does not apply to valve cap bolts. If lower resistance values are measured, remove, inspect, and replace all imperfect dielectric flange bolt sleeves and washers. If an insulated flange with threaded cap bolts passes the resistance tests for all the “through-bolts” yet fails the other previous tests, remove all the threaded cap bolts, inspect and replace all imperfect dielectric flange bolt sleeve and washer materials and retest.

4. ELECTRICAL ISOLATION TESTING BETWEEN PIPE AND FOREIGN METALLIC STRUCTURES: (NOT USED)

5. CASING ISOLATION TESTING: (NOT USED)

6. ELECTRICAL CONTINUITY TESTING:

a. After installation, test all joint bonds for effectiveness using the circulating current testing method. This method employs circulating current through the pipe to determine a measured resistance. The measured resistance is compared to a calculated theoretical resistance to determine if the pipeline is electrical continuous. The theoretical resistance calculation shall be calculated prior to testing and must include: pipe resistance; joint bond resistance; and fringing effect. Contractor to supply to District the following information: pipe wall thickness,
number of bonds per pipe joint, length of pipe joints, bond wire AWG wire size, bond wire length, and number of pipe bonds in each pipe span. The theoretical pipe resistance calculations are to be supplied by the Contractor to the District.

b. The testing shall be performed prior to backfill of the pipe and shall be verified upon completion of backfilling operations. The resistance measured shall not exceed 120 percent of the theoretical resistance.

c. Any sections of pipe that fail to meet the 120 percent of the theoretical resistance criteria shall be repaired and retested by the Contractor, at the Contractor's expense, until the acceptance criteria is met.

d. The Contractor is responsible for the electrical continuity of pipe where the bonding is performed.

7. WAX TAPE COATING: (NOT USED)

8. ELECTRICAL RESISTANCE PROBE TESTING: (NOT USED)

9. ELECTRICALLY DISCONTINUOUS JOINT LOCATION TESTING

a. Locate and mark the centerline of the pipe in the span to be tested.

b. Lay temporary wire on the ground between the test stations in the pipe span to be tested.

c. Connect the temporary wire to the structure wires at one test station. At the other test station connect the temporary wire to an ammeter, 12-volt car battery, and a solid state interrupter in series. Connect the interrupter to the test station structure wires.

d. Cycle the interrupter at a low duty cycle, not to exceed 20% ON. Measure and record the ammeter reading before and after each survey.

e. Use two copper-copper reference electrodes that are calibrated and balanced within 2 mv of one another before starting each survey. Measure and record the potential difference between the two reference electrodes both before starting the survey and again after the last measurement of the survey.

f. While the interrupter is cycling, perform a cell-to-cell close interval potential survey per NACE TM0497 and NACE SP0207 over the pipeline centerline in five (5) foot intervals. Measure and record the potentials both during the ON and OFF duty cycle.
g. While the interrupter is cycling, repeat the survey over the pipeline centerline in five (5) foot intervals but measuring side drain potentials per NACE TM0497 and NACE SP0207 five (5)-foot lateral to the pipe centerline.

h. Tabulate the data and plot the potential difference versus pipeline station for both the cell-to-cell close interval survey and the side drain survey on the same graph. Submit the test results to the District.

C. OPERATIONAL TESTING

1. Upon completion of the installation, operational testing of the completed systems shall be provided by the Corrosion Engineer to ensure conformance with the Contract Documents, NACE SP0169, and NACE SP0286.

2. The testing described herein shall be in addition to, and not substitution for, any required testing of individual items at the manufacturer's plant and during installation.

3. Testing shall include the following and shall be conducted in accordance with NACE TM0497:

   a. Disconnect all anodes (existing and new) from pipes to be tested. Allow to depolarize for a minimum of one week.

   b. Measure and record native structure to soil potentials at new and existing test stations as identified on the plan drawings.

   c. Connect all anodes (existing and new) from pipes to be tested. Measure and record the “On” and “Instant Off” structure to soil potentials at new and existing test stations as identified on the plan drawings.

   d. Measure and record the current outputs of each anode.

4. Test results shall be analyzed to determine compliance with NACE SP0169 for each cathodic protection system.

5. A written report, prepared by the Corrosion Engineer, shall be provided to the District Representative. This report shall document the test methods performed, results of the testing, and recommend corrective work as required to comply with the contract documents. Any deficiencies of systems tested shall be repaired and retested at no additional contract cost.

3.04 TRAINING (NOT USED)

**END OF SECTION**