Segment 3 Toe Access Corridor Improvements and Segment 1 Erosion Protection Berm

SPECIFICATIONS

ISSUED FOR BID

Date: May 28, 2013

Submitted To:
Three Rivers Levee Improvement Authority
Phase 4 Feather River Levee Repair Project

Segment 3 TAC Improvements and Segment 1 Erosion Protection Berm

Specifications
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Submitted to:
Three Rivers Levee Improvement Authority
## Division 0 – General Provisions

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TERMS AND DEFINITIONS

1-1 GENERAL

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. Working titles having a masculine gender, such as "workman" and "journeyman" and the pronoun "he", are utilized in the specifications for the sake of brevity, and are intended to refer to persons of either gender.

1-2 ABBREVIATIONS

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<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
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<td>AC</td>
<td>Asphalt Concrete</td>
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<td>Linear Feet</td>
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</tbody>
</table>
LS  Lump Sum
NAHC  Native American Heritage Commission
NBFU  National Board of Fire Underwriters
NEC  National Electrical Code
NEMA  National Electrical Manufacturers Association
NFPA  National Fire Protection Association
NSF  National Sanitation Foundation
OSHA  Occupational Safety and Health Act
PCC  Portland Cement Concrete
RW  Relief Well
RWQCB  Regional Water Quality Control Board
SD  Storm Drain
SF  Square Foot/Feet
SS  Sanitary Sewer
STA  Station
Title 8  Title 8 (Construction Safety Orders) of the California Code of Regulations
Title 19  Title 19 (Public Safety) of the California Code of Regulations
Title 24  Title 24 (Building Standards) of the California Code of Regulations
TOC  Top of Curb
TRLIA  Three Rivers Levee Improvement Authority
Typ.  Typical
UL  Underwriters’ Laboratories, Inc.
UBC  Uniform Building Code (latest edition adopted by Owner)
UMC  Uniform Mechanical Code (latest edition adopted by Owner)
UPC  Uniform Plumbing Code (latest edition adopted by Owner)
USACE  U.S. Army Corps of Engineers
USBR  United States Bureau of Reclamation
USFWS  United States Fish and Wildlife Service
VELB  Valley Elderberry Longhorn Beetle
WCLA  West Coast Lumbermen's Association
WIC  Woodwork Institute of California
1-3 DEFINITIONS

Allowance -- An amount of money set aside under the Contract for a special purpose identified in the Contract.

Architect and/or Consulting Engineer -- A person or persons, firm, partnership, joint venture, corporation, or combination thereof or authorized representative thereof, acting in the capacity of consultant to the Owner. The Architect or Consulting Engineer shall issue directions to the Contractor only through the Owner. When the Specifications require that approval be obtained from the Architect or Consulting Engineer, such approval shall be requested from and be given by the Owner.

As Shown, Etc. -- Where "as shown", "as latest indicated", "as detailed", or words of similar import are used, the reference is to the Contract unless specifically stated otherwise. Where "as directed", "as permitted", "approved", or words of similar import are used, they shall mean the direction, permission, or approval of the Owner.

Bid -- 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.

Bidder -- Any person, persons, firm, partnership, joint venture, corporation, or combination thereof, submitting a Bid for the Work, acting directly or through a duly authorized representative.

Bid Documents -- The sum of the documents that comprise the Bid by a Bidder to perform the Work.

Bid Opening -- The event conducted by the Owner during which the sealed Proposals submitted by Bidders to perform the Work are opened and publicly read.

Board of Directors -- The Board of Directors of the Three Rivers Levee Improvement Authority. Also referred to as “Board”.

Calendar Day -- Every day shown on the calendar. When the Contract Time is stated in Calendar Days, every day will be charged toward the Contract Time.

Contract -- The written agreement signed by the Owner and the Contractor covering 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, Drawings (also referred to as Plans), Specifications, Special Provisions, contract bonds, and any project-specific specifications or documents; also any and all Change Orders amending or extending the Work contemplated and which may be required to complete the Work in a substantial and acceptable manner.

Contract Change Order -- A Contract amendment approved by the Owner that includes, but is not limited to, alterations, deviations, additions to, or deletions from, the Contract which are required for the proper completion of the Work.

Contractor -- The person or persons, firm, partnership, joint venture, corporation, or combination thereof, private or municipal, who (that) has (have) entered into a Contract, as defined in these Specifications, with the Owner.

Contract Time -- The time stated in the Contract for completion of the Work. The Contract Time may be a single allotment of time, a group of times specific to portions of the Work, or a combination of the two.

County -- The County of Yuba, a political subdivision of the State of California.

Drawings -- The plans, drawings, profiles, cross sections, Working Drawings, and Supplemental Drawings, or reproductions thereof, approved by the Owner, which show the locations, character, dimensions, and details of the Work.
**Engineer** – The Director of Public Works for Yuba County, acting personally or through agents or assistants duly authorized by the Engineer.

**Estimated Quantities** – The list of items of work and the estimated quantities associated with the Work. The Estimated Quantities provide the basis for the Bid.

**Inspector** – The person or persons authorized to act as agent(s) for the Owner in the inspection of the Work.

**Notice To Contractors** – The written notice whereby interested parties are informed of the date, location, and time of the Bid Opening of a proposed Owner Project and the terms and conditions of submitting Bids to perform the Work.

**Notice To Proceed** – The written authorization by the Owner to the Contractor specifying the date the Work may begin and any conditions regarding the beginning of the Work.

**Owner** – Shall mean the Three Rivers Levee Improvement Authority, acting through its authorized representatives.

**Plans** – The plans, drawings, profiles, cross sections, Working Drawings, and Supplemental Drawings, or reproductions thereof, approved by the Owner, which show the locations, character, dimensions, and details of the Work.

**Project** – Shall mean the Work.

**Proposal** – Shall mean “Bid”.

**Record Drawings** – Drawings prepared by the Contractor that document changes to, additions to, or deductions from the Drawings, and which represent the Work as constructed.

**Schedule of Values** – A statement furnished by the Contractor to the Owner reflecting the portions of the Total Contract Price allotted for the various parts of the Work for each work activity contained on the project schedule. Unless otherwise indicated in the Specifications, the total of the Schedule of Values shall equal the full cost of the Work, including all labor, material, equipment, overhead, and profit. For lump sum contracts, the Schedule of Values is the basis for reviewing the Contractor's application for progress payments.

**Special Provisions** – The Special Provisions are specific clauses setting forth conditions or requirements peculiar to the Work and supplementary to these Standard Construction Specifications.

**Specifications** – The directions, provisions, and requirements contained in the General Provisions, the Special Provisions, and the technical specifications, together with any amendments or revisions that may be set forth in the Special Provisions.

**Standard Drawings** – The Standard Drawings of the Owner, which are made a part of the Drawings by reference to one or more specific Standard Drawings.

**State** – The State of California.

**State Specifications** – The version of the standard specifications of the State of California, Department of Transportation, in effect at the time of Notice to Contractors.

**State Plans** – The version of the Standard Plans of the State of California, Department of Transportation, in effect at the time of Notice to Contractors.

**Subcontractor** – A properly licensed party under contract to and responsible to the Contractor for performing a specified part of the Work; or a properly licensed party under contract and responsible to a Subcontractor of the Contractor.
**Supplemental Drawing** -- Supplemental Drawings define the Drawings or Specifications in greater detail by providing additional information that may have not been specifically or clearly shown or called out on the Drawings or in the Specifications.

**Technical Provisions** – The provisions of the Specifications that describe the technical aspects of the Work.

**Total Contract Price** – The total price for the Work as bid by the Contractor, including any additions or subtractions made via Contract Change Orders.

**Work** -- All actions which the Contractor is contractually required to do as specified, indicated, shown, contemplated, or implied in the Contract to construct the Work, including all alterations, amendments, or extensions made by Contract Change Order or other written orders or directives of the Owner. Unless specified otherwise in the Contract, the Work includes furnishing all materials, supplies, equipment, tools, labor, transportation, supervision, and all incidentals necessary to complete the Work.

**Working Drawing** -- Working Drawings detail a particular item of work and the manner in which it is to be accomplished or performed. Working Drawings are prepared by the Contractor as a submittal or a portion of a submittal and may be specifically requested by the Owner or required in the Contract or a Field Instruction or other written directive.
SECTION 2
BID REQUIREMENTS AND CONDITIONS

2-1 BID FORM

The Owner will furnish to each prospective Bidder, at a cost stipulated in the Notice to Contractors, a bid form which, when properly completed and executed, must be submitted as the Bidder's Bid for the Work. All Bids must be submitted on the Owner-furnished bid form to be valid and accepted. Bids that are not submitted on the Owner-furnished bid form will be rejected. The completed bid form shall be in English and legible, and shall be properly signed in longhand by the Bidder, if an individual, by a member of a partnership, by an officer of a corporation authorized to sign contracts on behalf of the corporation, or by an agent of the Bidder. If submitted by a corporation, the Bid shall show the name of the state under the laws of which the corporation is chartered or organized.

The Bid shall be made on the bid form in clearly legible figures as follows:

2-1.01 Unit Price Bid

Where the bid for an item of work is to be submitted on a unit price basis, the Bidder shall bid a unit price as total compensation for completion of one unit of the work described under that item. This price shall be multiplied by the Estimated Quantity included in the bid form to derive a total bid price for that item. The total amount bid for a unit price contract shall be entered on the space provided on the bid form as a grand total of all individual items.

The Estimated Quantities included on the bid form are approximate and are only included in the bid form as a basis for comparison of Bids. The Owner does not, expressly or by implication, represent or agree that the actual amount of work will equal the approximate Estimated Quantities. Payment will be made for the actual quantity of Work performed in accordance with the Contract. The Owner reserves the right to increase or decrease the amount of any class or portion of the Work, or to omit portions of the Work, as may be deemed necessary or advisable in the sole discretion of the Owner. For compensation for alterations in quantities of work, including deviations greater than twenty-five percent (25%), see Section 9-8.02, “Payment for Changes – Unit Prices”, of these Specifications.

2-1.02 Lump Sum Bid

Where the bid for an item of work is to be submitted on a "Lump Sum" or "Job" basis, a single lump-sum price shall be submitted in the appropriate place on the bid form. Items bid on a lump-sum basis shall result in a complete structure, operating plant, or system, in satisfactory working condition with respect to the functional purposes of the installation, as described in the Contract, and no extra compensation will be paid for anything omitted but fairly implied.

2-1.03 Allowances

Where specific allowance items have been entered on the bid form by the Owner, the total amount entered on the bid form shall be included in the Total Bid Price. However, the total amount to be paid for the Work included in the Allowance shall be the amount of the Allowance actually utilized in the course of completing the Work.

2-2 PREPARATION AND SUBMISSION OF BIDS

By submission of a Bid, the Bidder acknowledges acceptance of the nature and location of the Work, the general and local conditions, conditions of the site, the character, quality and scope of work to be performed, the availability of labor, electric power, water, the kind of surface and
subsurface materials on the site, the materials and equipment to be furnished, and all
requirements of the Contract or other matters that may affect the Work, its cost, or the time
required to complete the Work. Any failure of a Bidder to become acquainted with all of the
available information concerning conditions will not relieve the Bidder from the responsibility for
properly estimating the difficulties or cost of the Work.

The Bidder declares by the submission of a Bid that the Bid is not made in the interest of, or on
behalf of, any undisclosed person, partnership, company, association, organization, or
corporation; that the Bid is genuine and not collusive or a sham; that the Bidder has not directly or
indirectly induced or solicited any other Bidder to put in a false or sham Bid, and has not directly
or indirectly colluded or agreed with any Bidder or anyone else to put in a sham Bid or to refrain
from bidding; that the Bidder has not directly or indirectly sought by agreement, communication,
or conference with anyone to fix the Bid price or the Bid price of any other Bidder, or to fix any
overhead, profit, or cost element of such Bid price or that of any other Bidder, or to secure any
advantage against the Owner, anyone interested in the Bid as principal, or those named within
the Bid; that all statements contained in the Bid are true; that the Bidder has not directly or
indirectly submitted a Bid price or any breakdown thereof or the contents thereof, or divulged
information or data relative thereto, to any other person, partnership, corporation or association,
except to person or persons as have a direct financial interest in the Bidder's general business.

Bid prices shall include everything necessary for the completion of the Work and fulfillment of the
Contract, including but not limited to furnishing all materials, equipment, tools, excavation
sheeting, bracing and supports, plant, labor and services, except as may be provided otherwise in
the Contract. Bid prices shall include all Federal, State, and local taxes, and all other fees and
costs not expressly paid for by the Owner as stated in the Special Provisions.

The Bid shall be submitted in a sealed envelope as directed in the Notice to Contractors. The
Bidder shall plainly mark the exterior of the envelope in which the Bid is submitted to indicate that
it contains a Bid for the project for which the Bid is submitted, and the date of the Bid opening.

Bids submitted in envelopes that are not properly marked will be rejected.

2-3 EXAMINATIONS OF PLANS, SPECIFICATIONS, AND SITE OF WORK

The Bidder shall examine carefully the site of the proposed Work and the Plans, Specifications
and Bid Documents, and shall be satisfied as to the character, quality, and quantity of surface
and subsurface materials or obstacles to be encountered. The submission of a Bid shall be
conclusive evidence that the Bidder is satisfied through the Bidder's own investigation as to the
conditions to be encountered; the character, quality, quantity and scope of work to be performed;
and the materials and equipment to be furnished.

If material discrepancies or apparent material errors are found in the Plans and Specifications
prior to the date of bid opening, an Addendum may be issued (see Section 2-9, "Addenda", in this
Section of these Specifications). Otherwise, in figuring the Work, Bidders shall consider that any
discrepancies or conflict between Plans and Specifications will be governed by Section 4-1,
"Intent of Contract Documents".

2-4 SUBSURFACE CONDITIONS

Where investigations of subsurface conditions have been made by the Owner with respect to
subsurface conditions, utilities, foundation, or other structural designs, and that information is
shown in the Plans, it represents only a statement by the Owner as to the character of materials
which have actually been encountered by the Owner's investigation. This information is only
included for the convenience of Bidders.
Investigations of subsurface conditions are made for the purpose of design only. The Owner assumes no responsibility with respect to the sufficiency or accuracy of borings or of the log of test borings or other preliminary investigations or of the interpretation thereof. There is no guaranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the Work, or any part of it, or that unanticipated conditions may not occur. When a log of test borings is included in the Plans, it is expressly understood and agreed that the test boring log is not a part of the Contract. The log of test borings provides data concerning the soil conditions encountered at the specific depth, location and date of the sampling and is included in the Plans only for the convenience of the Bidders. Owner makes no representation of the adequacy of this information for Bidder’s use and Bidder is solely responsible for making any interpretations of the data, including its adequacy and relevance for Bidder’s use. Making information available to Bidders is not to be construed in any way as a waiver of the provisions of the first paragraph of this Section 2-4, and Bidders must satisfy themselves through their own investigations as to conditions to be encountered.

2-5    CONTRACTORS/SUBCONTRACTORS REQUIRED TO BE LICENSED

The Bidder shall be licensed under the provisions of Chapter 9, Division 3, of the Business and Professions Code to do the type of work contemplated in the project, and shall be skilled and regularly engaged in the general class or type of work called for under the contract. The specific type of license required will be indicated in the “Notice to Contractors”. Unless specified otherwise in the Special Provisions, the Bidder shall indicate the license number and class in the space provided for that purpose on the bid form.

All Subcontractors engaged to perform portions of the Work shall be licensed under the provisions of Chapter 9, Division 3, of the Business and Professions Code to do the type of work for which they are subcontracted, and shall be skilled and regularly engaged in the general class or type of work called for under their subcontracts.

Attention is also directed to the provisions of Public Contract Code Section 20103.5, which addresses Contractor licensing requirements. The Owner may not award the Contract if it cannot be verified that the low Bidder is an appropriately licensed Contractor at the time of Contract award.

2-6    COMPETENCY OF BIDDERS

It is the intention of the Owner to award a Contract only to a Bidder who furnishes satisfactory evidence that the Bidder has the requisite experience and ability, and has sufficient capital, facilities, and plant to enable the Contractor to prosecute the Work successfully and promptly, and to complete the Work within the time stated in the Contract.

If required by the Special Provisions or the Notice to Contractors, a statement of experience and business standing, together with that of all Subcontractors that were designated in the Bid, shall be submitted on an Owner-provided form. To determine the experience of a Bidder, any relevant evidence will be considered that the Bidder, or personnel, has satisfactorily performed on other contracts of similar nature and magnitude or difficulty.

2-7    JOINT VENTURE BIDS

If two or more prospective Bidders desire to bid jointly as a joint venture, the joint venture Bid must be accompanied by a notarized copy of a valid license issued to the joint venture by the Contractor’s State License Board. If a copy of the joint venture license is not filed with the Bid, the Bid will be rejected.

2-8    SUBCONTRACTORS
Except as noted in the Special Provisions, the Contractor shall perform, with the Contractor's own organization and with workers under the Contractor's immediate supervision, work of a value not less than fifty percent (50%) of the value of original Total Contract Price less "Specialty Items". "Specialty Items" may be performed by subcontract and the cost of any "Specialty Items" so performed may be deducted from the original Total Contract Price before computing the amount of work required to be performed by the Contractor. Where an entire item is subcontracted, the value of work subcontracted will be based on the Contract item bid price. When a portion of an item is subcontracted, the value of work subcontracted will be based on the estimated percentage of the contract item bid price, determined from information submitted by the Contractor, subject to approval by the Owner. In accordance with the Subletting and Subcontracting Fair Practices Act, of the Public Contract Code, Section 4100 et seq., each Bidder shall list in the bid form:

- The name and the location of the place of business of each Subcontractor whom the Bidder proposes to perform work or labor or render service to the prime Contractor in or about the construction of the Work, or a Subcontractor licensed by the State of California who, under subcontract to the prime Contractor, is proposed by the Bidder to specially fabricate and install a portion of the Work according to detailed drawings contained in the Contract, in an amount in excess of one-half of one percent (0.5%) of the Total Bid or, in the case of a Bid for the construction of streets or highways, including bridges, in excess of one-half of one percent (0.5%) of the Bidder’s Total Bid or ten thousand dollars ($10,000), whichever is greater.
- The portion of the Work [type of work and percentage if not one hundred percent (100%)] that will be done by each Subcontractor. The Bidder shall list only one Subcontractor for each portion as is defined by the Bidder in the Bid.

If a Bidder fails to specify a Subcontractor for any portion of the Work to be performed under the Contract (or specifies more than one Subcontractor for the same work), the Bidder agrees that the Bidder is fully qualified and shall perform that portion of the Work. If after the award of the Contract, the Contractor subcontracts any portion of the Work, except as provided in Section 4107 or 4109 of the Act, the Contractor shall be subject to the penalties specified in Section 4111 of the Act.

A listed Subcontractor shall perform with the Subcontractor's own organization and with workers under the Subcontractor’s immediate supervision, work of a value of not less than seventy-five percent (75%) of the value of each item of work for which the Subcontractor is listed.

Pursuant to Public Contract Code Section 6109, a Contractor may not perform work with a Subcontractor who is ineligible to perform work on public works projects pursuant to Labor Code Sections 1777.1 and 1777.7.

The apparent low Bidder shall submit the license numbers of all Subcontractors to the Owner within three (3) days, not counting Saturdays, Sundays, and holidays, of Bid opening. If the low Bidder is not the apparent low Bidder, the low Bidder shall submit the license numbers of all listed subcontractors to the Owner within three (3) days, not counting Saturdays, Sundays, and holidays, of the date notified.

The Contractor shall include provisions in every Subcontract that the Contract between the Contractor and the Owner is part of the Subcontract, and that all terms and provisions of the Contract are incorporated in the Subcontract. Copies of all Subcontracts shall be available to the Owner upon written request.

2-9 ADDENDA

The correction of any material discrepancies in, or material additions to/omissions from, the Plans, Specifications, or other Contract document, or any interpretation thereof, during the
bidding period will be made only by an Addendum issued by the Owner. A copy of each Addendum issued by the Owner will be mailed or delivered to each planholder listed on the Owner planholder list and is a part of the Contract. Any interpretation or explanation not included in the addenda will not be considered binding.

2-10 ASSIGNMENT OF ANTITRUST ACTIONS

The Bidder is required to comply with Public Contract Code Section 7103.5(b), which addresses assignment of antitrust actions.

2-11 BID GUARANTEE

The Bid shall be accompanied by a Bid Guarantee in the form of cash, a certified check, a cashier's check, or a bidder's bond in the form provided by the Owner. The Bid Guarantee shall be executed by an admitted surety insurer in favor of the Owner, the amount of which shall be not less than ten percent (10%) of the Base Bid amount, or other security acceptable to the Owner. No Bid will be considered unless accompanied by a Bid Guarantee.

The Owner is authorized to forfeit such Bid Guarantee as necessary to reimburse for costs incurred for failure of the successful Bidder to enter into a contract. The amount of the Bid Guarantee shall not be deemed to constitute a penalty or liquidated damages. The Owner is not precluded by a Bid Guarantee from recovering from the defaulting Bidder damages in excess of the amount of said Bid Guarantee incurred as a result of the failure of the successful Bidder to enter into a contract with the Owner for the Work.

2-12 WITHDRAWAL OF BID

A Bid may be withdrawn at any time prior to the hour fixed in the Notice to Contractors for the submission of Bids by a written request of the Bidder filed with the Owner at the location where the Bid was submitted. The withdrawal of a Bid will not prejudice the right of a Bidder to file a new Bid within the time prescribed.

2-13 PUBLIC OPENING OF BIDS

Bids will be opened and read publicly at the time and place indicated in the Notice to Contractors or in a subsequent Addendum. Bidders or their authorized representatives and other interested parties are invited to be present.

2-14 REJECTION OF BIDS

The Owner reserves the right to reject any and all Bids. The Owner reserves the right to waive irregularities in a Bid and to make an award in the best interest of the Owner. Bids containing omissions, erasures, alterations, conditions, or additions not called for may be rejected.

2-15 RELIEF OF BIDDERS

Attention is directed to Public Contract Code Sections 5100 through 5107, concerning relief of Bidders and in particular to the requirement therein that if the Bidder claims a material mistake was made in its Bid, the Bidder shall give the Owner written notice within five (5) days after the opening of the Bids (excluding Saturdays, Sundays, or legal holidays) of the alleged mistake, explaining in the notice in detail how the mistake occurred.
SECTION 3
AWARD AND EXECUTION OF CONTRACT

3-1 AWARD OF CONTRACT
The award of the Contract, if the Contract is to be awarded, will be to the lowest responsive, responsible Bidder. In addition to price in determining the lowest responsive, responsible Bidder, consideration will be given to:

- The ability, capacity and skill of the Bidder to perform the Work;
- The ability of the Bidder to perform the Work within the time specified, without delay;
- The ability of the Bidder to perform the Work in a safe manner;
- The character, integrity, reputation, judgment, experience and efficiency of the Bidder; and
- The quality of the Bidder's performance on previous work with the Owner.

If the Bid Schedule contains an Owner option or options and if an Owner option or options are selected by the Owner, award will be based on the lowest total price for the sum of the base bid price plus the bid prices of the selected Owner option or options after adjustments to the total price are made to reflect accepted Contractor alternatives.

Owner options will be taken in order from a list of those items, depending on available funds as identified in the bid solicitation.

3-2 TIME OF AWARD
The award, if made, will be made within sixty (60) Calendar Days after the Bid Opening. If the lowest responsive, responsible Bidder refuses or fails to execute the Contract, the Owner may award the Contract to the second lowest responsive, responsible Bidder. The specified period of time within which the award of the Contract may be made may be subject to extension for further periods as agreed upon in writing by the Owner and the Bidder.

3-3 CONSIDERATION OF BIDS
After the Bids have been opened and read, they will be checked for accuracy and compliance with the Specifications.

In the event that the product of a unit price and an estimated quantity does not equal the extended amount quoted, the unit price shall govern and the correct product of the unit price and the estimated quantity shall be deemed to be the amount bid. If the sum of two or more items in a bidding schedule or the sum of two or more bidding schedules does not equal the total amounts quoted, the individual item or schedule amounts shall govern and the correct total shall be deemed to be the amount bid. If the Bid is missing the unit price, then it may be deemed incomplete and the Bid may be rejected.

After the Owner has made any necessary corrections in mathematical errors appearing on the face of the Bid, all Bids will be compared based on the bid form.
3-4 PERFORMANCE AND PAYMENT BONDS

The format of the Performance Bond and Payment Bond forms shall be those contained in the Notice to Contractors.

As part of the execution of the Contract, the successful Bidder shall furnish the following corporate surety bonds to the benefit of the Owner. Bonds shall be executed by a surety company authorized to do business in the State of California and listed in the current Federal Department of Treasury Circular 570. When the amount to be paid to the Contractor is based upon units of work to be performed or items to be provided, the term “Total Contract Price” as used below for the purpose of posting Performance and Payment Bonds shall be computed on the basis of the unit price bid multiplied by the Estimated Quantities of work to be performed.

3-4.01 Performance Bond

The Performance Bond, to guarantee the performance of all covenants and stipulations of the Contract, shall be on the form provided by the Owner and shall be in a sum not less than one hundred percent (100%) of the original Total Contract Price as set forth in the Contract.

3-4.02 Payment Bond

The Payment Bond, to guarantee the payment of wages and of bills contracted for materials, supplies, or equipment used in the performance of the Contract, shall be on the form provided by the Owner and shall be in a sum not less than one hundred percent (100%) of the original Total Contract Price as set forth in the Contract.

3-5 NOTIFICATION OF SURETY COMPANIES

The surety company shall be familiar with all the provisions and conditions of the Contract. It is understood and agreed that the surety company waives notice of change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or to the specifications accompanying the same, or any other act or acts by the Owner or the Owner’s authorized agents under the terms of the Contract; and failure to so notify the surety company of changes shall in no way relieve the surety company of its obligations under the Contract.

3-6 RETURN OF BID GUARANTEES

After Bids have been received and reviewed by the Owner, Bid Guarantees will be returned to the respective Bidders except those submitted by the three lowest responsive, responsible Bidders.

Bid Guarantees for Bids not to be further considered in executing the Contract will be returned within ten (10) Calendar Days after the award of the Contract. The Bid Guarantees of the three lowest responsive, responsible Bidders will be returned within ten (10) Calendar Days after the successful Bidder has filed satisfactory bonds and proof of insurance as specified and the Bidder and the Owner have executed the Contract.

If all Bids are rejected and no award is made, all Bid Guarantees will be returned within ten (10) Calendar Days of the decision of the Owner to not award the Contract.

3-7 EXECUTION OF CONTRACT

The Contract shall be executed by the successful Bidder and returned to the Owner, together with the Performance Bond, Payment Bond and certificates of insurance within ten (10) Calendar Days of the Bidder’s receipt of the documents. Insurance certificates shall be signed by a person authorized by the insurer to bind coverage on its behalf and shall be accompanied by copies of all...
endorsements required by Section 3-9 in this Section of these Specifications. When requested by the Owner, the successful bidder shall furnish complete, certified copies of all required insurance policies, including endorsements specifically required by Section 3-9. After execution by the Owner, one copy of the Contract, bonds, and certificates of insurance will be returned to the Contractor.

3-8  FAILURE TO EXECUTE CONTRACT

If the Bidder to whom the Contract is awarded fails to execute the Contract and file acceptable bonds and insurance documentation as provided herein within ten (10) Calendar Days from the time the Contract forms are received by the Bidder, the award may be annulled and the Bidder's Bid Guarantee forfeited to the Owner. At the Owner's discretion, the Contract may then be awarded to the next lowest responsive, responsible Bidder.

If the Owner awards the Contract to the second lowest responsive, responsible Bidder, the amount of the lowest responsive, responsible Bidder's Bid Guarantee shall be applied by the Owner to the difference between the lowest Bid and the Bid of the second lowest responsive, responsible Bidder, and the surplus, if any, will be returned to the lowest responsive, responsible Bidder if a check or cash is used, or credited to the surety on the Bidder's Bond if a bond is used.

On refusal or failure of the second lowest responsive, responsible Bidder to execute the Contract, the Owner may award it to the third lowest responsive, responsible Bidder. If the Owner awards the Contract to the third lowest responsive, responsible Bidder, in addition to application of the lowest Bidder's Bid Guarantee as aforesaid, the amount of the second lowest responsive, responsible Bidder's Bid Guarantee shall be applied by the Owner to the difference between the Bid of the second lowest responsive, responsible Bidder and the Bid of the third lowest responsive, responsible Bidder, and the surplus, if any, shall be returned to the second lowest responsive, responsible Bidder if a check or cash is used, or credited to the surety on the second lowest Bidder's Bid Bond if a bond is used.

3-9  INSURANCE

The Contractor shall procure, maintain, and keep in force at all times during the term of the Contract, at the Contractor's sole expense, the following insurance:

3-9.01  General Liability

General Liability insurance including, but not limited to, protection for claims of bodily injury and property damage liability, personal and advertising injury liability, and products and completed operations liability. Coverage shall be at least as broad as "Insurance Services Office Commercial General Liability Coverage Form CG 0001" (occurrence). The limits of liability shall be not less than:

<table>
<thead>
<tr>
<th>Coverage</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each Occurrence</td>
<td>Two Million Dollars ($2,000,000)</td>
</tr>
<tr>
<td>Personal &amp; Advertising Injury</td>
<td>Two Million Dollars ($2,000,000)</td>
</tr>
<tr>
<td>Products and Completed Operations Aggregate</td>
<td>Four Million Dollars ($4,000,000)</td>
</tr>
<tr>
<td>General Aggregate</td>
<td>Four Million Dollars ($4,000,000)</td>
</tr>
<tr>
<td>Fire Damage</td>
<td>One Hundred Thousand Dollars ($100,000)</td>
</tr>
</tbody>
</table>

The Contractor shall maintain Products and Completed Operations Coverage with a carrier acceptable to the Owner through the expiration of the patent deficiency in the Statute of Repose as set forth in the Code of Civil Procedure Section 337.1.
The policy shall cover contractual liability applicable to the Contractor’s assumed liability under this Contract and shall waive subrogation as against the Owner, Engineer, their agents and consultants.

The policy shall provide coverage for claims arising out of subsidence.

The Products and Completed Operations coverage shall be maintained for at least two years after completion of the Contract.

### 3-9.02 Automobile Liability

Automobile Liability insurance providing protection against claims of bodily injury and property damage arising out of ownership, operation, maintenance, or use of owned, hired, and non-owned automobiles. Coverage shall be at least as broad as “Insurance Services Office Business Auto Coverage Form CA 0001,” symbol 1 (any auto). The limits of liability shall not be less than:

- **Bodily Injury and Property Damage**
  - Combined Single Limit: Five Million Dollars ($5,000,000)

### 3-9.03 Workers’ Compensation

Workers’ Compensation insurance, with coverage as required by the State of California (unless the Contractor is a qualified self-insurer with the State of California), and Employers’ Liability coverage. The limits of Employers’ Liability shall not be less than:

- **Each Accident**
  - Bodily Injury and Property Damage: One Million Dollars ($1,000,000)
- **Disease Each Employee**
  - Bodily Injury and Property Damage: One Million Dollars ($1,000,000)
- **Disease Policy Limit**
  - Bodily Injury and Property Damage: One Million Dollars ($1,000,000)

The Workers’ Compensation policy required hereunder shall be endorsed to state that the Workers’ Compensation carrier waives its right of subrogation against the Owner, its officers, officials, employees, agents or volunteers.

In the event the Contractor is self-insured, the Contractor shall furnish a Certificate of Permission to Self-Insure by the Department of Industrial Relations Administration of Self-Insurance, Sacramento.

### 3-9.04 Excess or Umbrella Liability

In addition to the limits required above, the Contractor shall maintain an Excess or Umbrella Liability policy in the amount of ($10,000,000) per occurrence and aggregate. The Contractor’s excess or umbrella liability insurance shall provide excess coverage at least as broad as the underlying coverage for general, automobile and employer's liability.

### 3-9.04.A Contractor’s Equipment

The Contractor, and each of its Subcontractors, shall separately insure its own equipment for loss and damage. The Contractor's Property and Inland Marine policies shall include, or be endorsed to include, a waiver of subrogation against the Owner, its officers, officials, employees, agents, and volunteers which might arise by reason of damage to the Contractor’s property or equipment.
(owned, leased or borrowed) in connection with work performed under this Contract by the Contractor.

3-9.04.B Railroad Protective Liability

When stated as a requirement in the Special Provisions, the Contractor shall procure, maintain, and keep in force at all times during the term of the Contract, at the Contractor's sole expense, Railroad Protective Liability insurance with limits of liability as set forth in the Special Provisions.

3-9.04.C Builder's Risk Insurance

The Contractor shall procure, maintain, and keep in force at all times during the term of the Contract and until the date of transfer of the insurable interest to and acceptance by the Owner, at the Contractor's sole expense, Builder's Risk insurance with limits of liability equal to one hundred percent (100%) of the replacement cost of the Work.

1. Coverage shall be written on a completed value, non-reporting form, on a replacement cost basis, and shall cover the property against all risks of physical loss or damage including:
   a. Land movement and flood
   b. Loss that ensues from design error, defective materials, or faulty workmanship
   c. Mechanical breakdown or electrical damage including testing, magnetic disturbance and changes in temperature or humidity.

The property covered shall include the Work, including any materials, equipment, or other items to be incorporated therein while the same are located at the construction site, stored off site, while in transit or at the place of manufacture. The policy shall contain a provision that both the interests of the Owner and the Contractor are covered and that any loss shall be payable to the Owner and the Contractor as their interests may appear.

When stated as a requirement in the Special Provisions, Builder’s Risk insurance shall include Delay in Opening coverage with limits of liability, and for the period of time, as set forth in the Special Provisions. Coverage shall include debt service, expense, loss of earnings or rental income or other loss incurred by the Owner, without deduction, due to the failure of the project being completed on schedule.

2. The maximum deductible for land movement and flood allowable under this policy shall be five percent (5%) of replacement value at the time loss or one hundred thousand dollars ($100,000), whichever is less, per occurrence and in the aggregate. The maximum deductible for all other perils allowable under this policy shall be ten thousand dollars ($10,000). All deductibles shall be borne solely by the Contractor, and the Owner shall not be responsible to pay any deductible, in whole or in part.

3. The Owner and the Contractor waive all rights against each other and against all other contractors for loss or damage to the extent reimbursed by Builder's Risk insurance or any other property or equipment insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance. If the policies of insurance referred to in this section require an endorsement or consent of the insurance company to provide for continued coverage where there is a waiver of subrogation, the owners of such policies will cause them to be so endorsed to obtain such consent.

4. If not covered by Builder's Risk insurance or any other property or equipment insurance required by this Contract, the Contractor shall procure, maintain, and keep in force at all times during the term of the Contract, at the Contractor’s sole expense, property
insurance for portions of the Contractor's work and/or equipment to be incorporated therein stored offsite or in transit.

3-9.04.D **Environmental Liability Insurance**

The Contractor shall procure, maintain, and keep in force at all times during the term of the Contract, at the Contractor’s sole expense, Environmental Liability insurance which includes coverage for sudden and accidental pollution arising out of the handling of hazardous materials or hazardous wastes, non-hazardous materials or non-hazardous wastes that when released to the environment, violate regulatory standards of the Federal, State or local government, and coverage for liability arising out of the handling of asbestos. If coverage for Environmental Liability insurance is written on a claims-made form, the following provisions apply:

Limits of coverage shall be five million dollars ($5,000,000).

The "Retro Date" must be shown, and must be on or before the date of the Contract or the beginning of the Work.

Insurance must be maintained and evidence of insurance must be provided for at least one (1) year after completion of the Contract.

If coverage is cancelled or non-renewed, and not replaced with another claims-made policy form with a "Retro Date" prior to the Contract effective date, the Contractor must purchase “extended reporting” coverage for a minimum of one (1) year after completion of the Contract.

3-9.04.E **Other Provisions**

1. The Contractor's General Liability, Automobile Liability, and any Excess or Umbrella Liability, shall contain the following provisions:

   a. The Owner, Consulting Engineer, State of California Central Valley Flood Protection Board, State of California Department of Water Resources, its officers, officials, employees, agents and volunteers shall be covered as additional insureds as respects liability arising out of the activities performed by or on behalf of the Contractor, products and completed operations of the Contractor, premises owned, occupied, or used by the Contractor, or automobiles owned, leased, hired, or borrowed by the Contractor. The policy shall contain no special limitations on the scope of coverage afforded to the above named entities and their officers, officials, employees, agents, or volunteers.

   b. For any claims related to this Contract, the Contractor's insurance coverage shall be primary insurance as respects the Owner, its officers, officials, employees, agents, engineering consultants, or volunteers. Any insurance or self-insurance maintained by the Owner, its officers, officials, employees, agents, engineering consultants, or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

   c. Any failure to comply with reporting or other provisions of the policies on the part of the Contractor, including breaches of warranties, shall not affect coverage provided to the Owner, its officers, officials, employees, agents, engineering consultants, or volunteers.

2. The Contractor's General Liability and any Excess or Umbrella Liability insurance policies shall contain an endorsement stating that any aggregate limits shall apply separately to the Work.
3. Prior to exercising any right or commencing any work on this project, Contractor shall furnish Owner with all endorsements to the required policies of insurance, excepting workers’ compensation and employer’s liability, in such forms reasonably acceptable to Owner. Moreover, upon request of Owner, Contractor shall provide a certified duplicate original of any of the herein described policies of insurance.

4. Contractor also shall furnish Owner, prior to exercising any right or commencing any work on this project, with certificates of insurance countersigned by an authorized agent or representative of the insurance companies stating that the insurance policies will not be canceled, altered, or reduced without thirty (30) days’ prior written notice to Owner (ten (10) days for nonpayment of premium).

5. The Contractor’s insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer’s liability.

6. Each insurance policy by endorsement or provision shall state that coverage shall not be suspended, voided, cancelled by the Contractor or the Owner, reduced in scope of coverage or in limits, non-renewed, or materially changed unless the insurer(s) provide thirty (30) Calendar Days written notice by certified mail to the Owner prior to such change. Ten (10) Calendar Days prior written notice by certified mail shall be given to the Owner in the event of cancellation due to nonpayment of premium.

7. All of the Contractor's insurance coverage, except as noted below, shall be placed with insurance companies with a current A.M. Best rating of at least A-:X.

Exceptions:

a. Underwriters at Lloyd's of London, which are not rated by A.M. Best.

b. Workers' Compensation which is provided through a State Compensation Insurance Fund or a qualified self-insurer for Workers' Compensation under California law.

c. For liability insurance required under Section 3-9.04D (Environmental Liability insurance), insurance requirements shall be placed with insurance companies with a current A.M. Best rating of at least B+:VII.

8. The Contractor shall sign and file with the Owner the following certification prior to commencing performance of the work of the Contract:

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

Said certification is included in the Contract, and signature and return of the Contract shall constitute signing and filing of the said certification.

9. The Owner, at its discretion, may require new types of insurance coverage or increase the limits of insurance coverage required hereunder at any time during the term of the Contract by giving thirty (30) Calendar Days written notice to the Contractor. Contractor shall immediately procure such insurance or increase the limits of coverage and provide certificates of insurance, including copies of all required endorsements, to the Owner within thirty (30) Calendar Days of receipt of the Owner’s request.
10. The required insurance coverage shall be subject to the approval of the Owner, but any acceptance of insurance certificates by the Owner shall in no way limit or relieve the Contractor of its duties and responsibilities in this Contract.

11. If the Contractor fails to procure or maintain insurance as required by this Section and any Special Provisions, or fails to furnish the Owner with proof of such insurance, the Owner, at its discretion, may procure any or all such insurance. Premiums for such insurance procured by the Owner shall be deducted and retained from any sums due the Contractor under the Contract. Failure of the Owner to obtain such insurance shall in no way relieve the Contractor from any of the Contractor’s responsibilities under the Contract. Any failure of the Contractor to maintain any item of the required insurance is sufficient cause for termination of the Contract.

12. The making of progress payments to the Contractor shall not be construed as relieving the Contractor of responsibility for loss or damage, or destruction occurring prior to final acceptance by the Owner.

13. The Owner is authorized to execute amendments and waivers, with or without conditions, to the insurance requirements of the Contract. The Owner will provide such amendments or waivers in writing to the Contractor.

The failure of the Owner to enforce in a timely manner any of the provisions of this Section shall not act as a waiver to enforcement of any of these provisions at any time during the term of the Contract.

3-9.05 Notification of Accident or Occurrence

The Contractor shall report by telephone to the Owner within twenty-four (24) hours and also report in writing to the Owner within fifteen (15) Calendar Days after the Contractor or any subcontractors or agents have knowledge of any accident or occurrence involving death of or injury to any person or persons, or damage in excess of ten thousand dollars ($10,000) to the Work, property of the Owner or others, arising out of any work done by or on behalf of the Contractor as part of the Contract. Such report shall contain:

1. The date and time of the occurrence,
2. The names and addresses of all persons involved, and
3. A description of the accident or occurrence and the nature and extent of injury or damage.
SECTION 4
SCOPE OF WORK

4-1 INTENT OF CONTRACT DOCUMENTS

The Work shall be performed and completed according to the Contract documents. The Contract documents provide the details for completing the Work in accordance with the terms of the Contract. Each Contract document is an integral part of the Contract, and a requirement occurring in one is as binding as though occurring in all. The Contract documents shall be interpreted as being explanatory and complementary in requiring complete work ready for use and occupancy or operation in satisfactory working condition with respect to the functional purposes of the installation.

The Contractor shall do all of the work and furnish all labor, materials, tools, equipment, and appliances, except as otherwise herein expressly stipulated, necessary or proper for performing and completing the work herein required, including any Change Order work or disputed work directed by the Owner, and all provisions of the Contract, within the time specified.

All work shown on the Plans, the dimensions of which are not figured, shall be accurately followed to the scale to which the drawings are made; however, figured dimensions shall in all cases be followed, even if they differ from scaled measurements. Full-size drawings shall be followed in the execution of the Work.

If the Contract does not specifically allow the Contractor a choice of quality or cost of items to be furnished, but could be interpreted to permit such a choice, the Contractor shall furnish the highest quality under current industry standards, regardless of the cost of the item.

Unless otherwise specified, the Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor, material, and transportation necessary to perform and complete the Work in a good and workmanlike manner to the satisfaction of the Owner, in the manner designated, and in strict conformity to the Contract. When portions of the Work are described in general terms, but not in complete detail, it is understood that the Contractor will employ only the best general practice and incorporate only the best quality materials and workmanship in the Work.

No extra compensation will be allowed for anything omitted but fairly implied. The prices paid for the various items will include full compensation for furnishing all labor, materials, tools, equipment, overhead, and incidentals and doing all work necessary to complete the Work as provided in the Contract. The prices paid include all markups and profit.

If the Contractor discovers any discrepancies during the course of the Work between the Contract drawings and conditions in the field, or any errors or omissions in the Contract drawings and conditions in the field, or any errors or omissions in the Contract drawings, the Specifications, or in the layout given by stakes, points, or instructions, it shall be the Contractor’s duty to inform the Owner immediately, and the Owner shall promptly verify the same. Any work done after such discovery, until authorized by the Owner, will be done at the Contractor’s risk.

4-2 PLANS AND SPECIFICATIONS FURNISHED

The Owner will provide, at no cost to the Contractor, copies of Project Plans (except Standard Drawings or State Plans), Project Specifications (except Standard Specifications or the State Specifications), and Special Provisions, and the fully executed Contract for the Contractor’s use in prosecuting the Work. The total number of copies of the Plans, Specifications, and Special Provisions provided shall equal the total of the prime Contractor plus the number of Subcontractors listed in the Bid. The Contractor may purchase additional copies of Plans, Specifications, and Special Provisions at cost.
The Contractor shall retain an approved set of Contract documents on the job during the progress of the Work. This set shall be used by the Contractor as the Record Drawings as described in Section 11-3, "Record Drawings", of these Specifications.

4-3 CONFORMANCE WITH CODES AND STANDARDS

The Work shall be in full compliance with the latest adopted edition of the following applicable standards and regulations:

- The State Fire Marshal
- The UBC
- Title 8
- Title 24
- The NEC
- The UPC
- Other codes, laws or regulations applicable to the Work or the Contract.

Nothing in the Contract 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 complete the Work in accordance with the higher standard.

4-4 SUPPLEMENTAL DRAWINGS

In addition to the Plans incorporated in the Contract at the time of signing, the Owner may furnish Supplemental Drawings as necessary to clarify or define in greater detail the intent of the Contract. In furnishing such Supplemental Drawings, the Owner may make minor changes in the Work, not involving extra cost and not inconsistent with the nature of the Work. The Supplemental Drawings shall become a part of the Contract.

4-5 FIELD INSTRUCTIONS OR OTHER WRITTEN DIRECTIVES

The Owner may issue Field Instructions or other written directives during the course of the Work, and the Contractor shall comply with the Field Instruction or other written directive. A Field Instruction or other written directive may be used to add, delete, modify, or reject work, to note deficiencies in work, to clarify the Contract or to order work to be performed. Work required by a Field Instruction or other written directive shall be in accordance with the Contract and any previously executed Contract Change Orders, except as delineated otherwise in the Field Instruction or other written directive. Drawings included with Field Instructions or other written directives are part of the Contract and shall be incorporated into the Record Drawings.

If the Contractor refuses or neglects to comply with or make progress in the execution of any Field Instruction or other written directive, the Owner may employ any person or persons to perform such work, and the Contractor shall not interfere with the person or persons so employed.

At appropriate intervals, Field Instructions and other written directives that alter the Contract will be grouped to form a Contract Change Order as described in Section 9, "Changes and Claims", of these Specifications.

4-6 DOCUMENT PRECEDENCE

The component Contract documents are intended to provide explanation for each other.
Any work shown on the Plans and not in the Specifications, or vice versa, is to be executed as if indicated in both. In case of conflict in the Contract, the following order of precedence will govern interpretation of the Contract:

1. Field Instructions or other written directives
2. Addenda
3. Project Drawings
4. Specifications
5. County Standard Drawings
6. County Standard Specifications
7. State Standard Plans
8. State Standard Specifications

Any work for which there are no provisions in these Specifications or on the Contract Drawings, shall be performed in accordance with the provisions of the State Specifications.

4-7 REQUESTS FOR INFORMATION

4-7.01 General

Contractor shall prepare a Request for Information (RFI) when additional information, clarification, or interpretation of the Contract is required. RFIs may also be used for apparent conflicts, inconsistencies, ambiguities, or omissions.

RFIs shall be submitted to the Owner sufficiently in advance of the work to permit time for investigation and preparation of a response. Any work undertaken prior to receipt of a response to an RFI will be at the Contractor’s risk.

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

4-7.02 Procedure

An RFI shall be submitted on an approved form as defined at the preconstruction meeting, and shall be numbered consecutively. A status log shall be prepared and updated by the Contractor and reviewed with the Owner at each progress meeting. Each RFI shall deal with only one topic, item, issue, or system.

The RFI shall clearly describe and specifically state what is being requested. Relevant portions of the Contract shall be cited, marked-up, and attached.

The Contractor shall review each RFI before submittal and compare it with the Contract to verify that a response is required. RFIs will only be accepted from the Contractor and not from Subcontractors or suppliers. A recommendation or proposed solution may be included when appropriate or expedient.

RFIs that are not clear or RFIs for which a response is clearly identified in the Contract will not be accepted.

4-7.03 Response

The Owner will normally respond within fourteen (14) Calendar Days. The Owner will provide a written response, and that response shall control.
The Contractor shall indicate a priority for responses to RFIs if more than five (5) RFIs are pending at the same time. If Contractor believes that work required by an RFI is an increase in contract scope, it must notify Owner in writing, as required in Section 9-16, “Dispute Regarding Contract Requirements”, of these Specifications.

Subsequent resubmittals of an RFI shall be identified with the same RFI number and a letter designation. Resubmittals shall clearly state the reason for the resubmittal.

Responses to RFIs shall be recorded by the Contractor on the Record Documents in accordance with Section 11-3, “Record Drawings”, of these Specifications.

4-8  DELETED ITEMS

The Owner may delete from the Work any item of work. The Contractor will be paid for all work done toward the completion of the item prior to such omission, as provided in Section 9, “Changes and Claims”, of these Specifications but in no event will the amount paid exceed the Bid or Schedule of Values amount less the value of the deleted work.

The Contractor shall make no claim, nor receive any compensation for profits, for loss of profit, for damages, or for any extra payment because of any deleted items of work.

4-9  EXTRA WORK

Work not covered by the Contract but necessary for the proper completion of the Project will be classed as extra work and shall be performed by the Contractor when directed in writing by the Owner. Extra work shall be performed in accordance with the Contract and as directed by the Owner.

Extra work must be authorized in writing by the Owner before the work is started. Payment for extra work will not be made unless such prior written authorization is obtained.

In the event of an emergency or other situation that endangers the Work or endangers public safety, the Owner will direct the Contractor to perform such extra work necessary to protect the Work or the public.

4-10  USE OF COMPLETED PORTIONS

The Owner has the right during the progress of the Work to take over and place in service any completed or partially completed portion of the Work. Taking possession shall not be deemed acceptance of any other portions of the Work, nor work on those portions not completed in accordance with the Contract.

4-11  LANDS AND RIGHTS-OF-WAY

The Owner shall provide the lands, rights-of-way, and easements upon which the Work is to be done, and such other lands as may be designated on the Plans for the use of the Contractor. The Contractor shall confine his operations to within these limits.

The Contractor shall provide at the Contractor's own expense any additional land and access that is required for temporary construction facilities or storage of materials. The Contractor shall obtain all required permissions for use of private property prior to taking possession or use. The permission shall be obtained in writing and a copy forwarded to the Owner prior to the Contractor taking possession of said property.
4-12 WARRANTY

The Performance Bond furnished by the Contractor as part of the execution of the Contract shall define the terms and time period of the Warranty of the Contractor's work unless otherwise specified in the Special Provisions. If no time period is specified in the Bond, the time period will be one year after field acceptance of Work (see Section 7-21, “Final Inspection and Field Acceptance”, of these Specifications).

If required by the Special Provisions, the Contractor shall enter into and sign Warranty statements in the form provided to warranty various segments of the Work for the time specified. If no time is otherwise stated, the specified warranty period begins on completion of the project and continues for one year thereafter.

If at anytime during the specified warranty period, the Work, or any portion thereof, fails, does not meet the requirements of the Contract or is otherwise defective, Contractor shall promptly make the needed repairs at the Contractor's expense.

The Owner is hereby authorized to make such needed repairs if the Contractor fails to undertake, with due diligence, the needed repairs within ten (10) Calendar Days after the Contractor is given written notice of such failure and without notice to the surety; provided, however, that in case of emergency where, in the opinion of the Owner, 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 entire costs.
SECTION 5
CONTROL OF WORK AND MATERIALS

5-1 AUTHORITY OF OWNER
The Owner will decide all questions regarding the quality and acceptability of materials furnished, work performed, and rate of progress of the Work. The Owner will decide all questions regarding the interpretation and fulfillment of the Contract on the part of the Contractor, and all questions as to the rights of different contractors involved with the Work.

The Owner will determine the amount and quality of the Work performed and materials furnished for which payment is to be made under the Contract.

The Owner will administer its authority through a duly designated representative identified at the preconstruction meeting. The Contractor and the Owner representative shall make good faith attempts to resolve disputes that arise during the performance of the Work.

Any order given by the Owner not otherwise required by the Contract to be in writing will be given or confirmed by the Owner in writing at the Contractor’s request. Such request shall state the specific subject of the decision, order, instruction, or notice and, if it has been given orally, its date, time, place, author and recipient.

5-2 ATTENTION AND COOPERATION OF CONTRACTOR
The Contractor shall comply with any instruction delivered to the Contractor or the Contractor’s authorized representative.

5-3 SUGGESTIONS TO CONTRACTOR
Any plan or method suggested to the Contractor by the Owner, Engineer or their consultants, but not required by Owner in writing, is without any responsibility or liability on behalf of Owner, Engineer or their consultants. If Contractor utilizes the suggestion, in whole or in part, it does so at its own risk.

5-4 SEPARATE CONTRACTS
The Owner reserves the right to award other Contracts in connection with the Work. The Contractor shall afford other contractors reasonable opportunity for the delivery and storage of their materials and the execution of their work and shall properly connect and coordinate their work with the other contractors.

If any part of the Contractor's work depends upon the work of any other contractor for proper execution or results, the Contractor shall inspect and promptly report to the Owner any defects in such work that render it unsuitable for proper execution and results. The Contractor's failure to so inspect and promptly report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of the Contractor's work, unless defects develop in the other contractor's work after the execution of the Contractor's work.

5-5 COOPERATION WITH OTHER CONTRACTORS
The Owner or adjacent property owners may perform work adjacent to or within the Work area concurrent with the Contractor's operations. The Contractor shall conduct operations to minimize interference with the work of other forces or contractors.

Any disputes or conflicts between the Contractor and other forces or contractors retained by the Owner which create delays or hindrance to each other shall be referred to the Owner for resolution. If the Contractor’s work is delayed because of the acts or omissions of any other force or contractor, the Contractor shall have no claim against the Owner other than for an extension of time (see Section 7-18, “Extension of Time”, of these Specifications).
5-6 CONTRACTOR’S DISMISSAL OF UNSATISFACTORY EMPLOYEES

If any person employed by the Contractor or any Subcontractor shall fail or refuse to carry out the directions of the Owner or the provisions of the Contract, or is, in the opinion of the Owner, incompetent, unfaithful, intemperate, or disorderly; or uses threatening or abusive language to any person on or associated with the Work; or is acting or working in a manner that compromises the safety of the Work or persons or property involved with the Work, or is otherwise unsatisfactory, the Contractor shall, when requested by the Owner, remove the worker from the Work immediately, and shall not again employ the removed worker on the Work except with the written consent of the Owner.

5-7 CONTRACTOR’S EQUIPMENT

The Contractor shall provide adequate and suitable equipment, in new or refurbished condition, labor, and means of construction to meet all the requirements of the Work, including completion within the Contract Time. Equipment that breaks down shall be promptly replaced with reliable equipment. Only equipment suitable to produce the quality of work required will be permitted to operate on the Project. Specific types of equipment may be requested by the Owner on component parts of the Work.

The Owner may, at the Owner's option, permit the use of new or improved equipment. If such permission is granted, it is understood that it is granted for the purpose of testing the quality and continuous attainment of work produced by the equipment, and the Owner shall have the right to withdraw such permission at any time that the Owner determines that the alternative equipment is not producing work that is equal in all respects to that specified, or will not complete the Work in the time specified in the Contract.

In any case where the use of a particular type or piece of equipment has been banned, or in cases where the Owner 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 may be considered a breach of contract.

5-8 CONTRACTOR’S SUBMITTALS

5-8.01 Submittals - General

The Contractor shall furnish all working drawings, plans, specifications, descriptive data, certificates, samples, tests, methods, schedules, and manufacturer's instructions as required in the Contract, and any other information required to demonstrate that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the Contract. Submittals shall be submitted by the dates specified in the Contract or a per diem fine of $1,000 per calendar day will be levied until the appropriate submittals are properly submitted. Dates for submittals, including reasonable durations for their review by Owner, must be included in the construction schedule.

Submittals for systems shall be bound together and include all information for the system.

If the information furnished in a submittal shows any deviation from the Contract requirements, the Contractor shall, by a statement in writing accompanying the information, advise the Owner of the deviation and state the reasons. It shall be the Contractor's responsibility to ensure there is no conflict with other submittals and to notify the Owner in any case where the Contractor's submittal may concern work by another contractor or the Owner. The Contractor is solely responsible for coordination of submittals among all related crafts performing the Work. The Contractor shall verify that its Subcontractors' submittals are complete in every way and meet the requirements of the Contract.

The approval of the Contractor's submittals shall not relieve the Contractor of responsibility for any error or of any obligation for accuracy of dimensions and details, for agreement with and conformity to the Contract, or responsibility to fulfill the Contract as prescribed. Nor shall such approval be considered as approval of any deviation or conflict unless the Owner has been
expressly advised of the same as set forth immediately above, and the Owner has expressly approved such deviation or conflict.

The Contractor shall make no changes to any submittal after it has been approved, and the equipment or materials shall not deviate in any way except with written approval by the Owner. Fabrication or other work performed in advance of approval shall be done entirely at the Contractor's risk.

Minimum requirements for submittals are contained in these Specifications. Additional and/or project-specific requirements may be contained in the Contract. The Contractor is responsible for identifying and providing all required submittals.

5-8.02 Resubmittals

Resubmittals shall address all comments from the Owner. Partial resubmittals may be returned "REJECTED". The Contractor is responsible for the Owner's review costs for each resubmittal in excess of the first resubmittal. These costs will be back charged to the Contractor and will be deducted from progress payments. Submittals not required by the Contract may be returned by Owner without review or comment.

5-8.03 Not used

5-8.04 Submittals Containing Proprietary Information

All required information shall be provided even though some or all of such information may be considered proprietary. If any of the information required herein is considered proprietary, a Proprietary Information Agreement shall be executed between the Owner and the Contractor, stipulating that all such information will be supplied by the Contractor and kept confidential by the Owner. All proprietary data shall be identified as part of the Contractor's Bid and the Owner's standard proprietary agreement shall be executed before award of the Contract. Proprietary information is defined as any information or data describing or defining a product, process or system which 1) was developed at the expense of the Contractor, a Subcontractor or supplier; 2) is not generally available in the industry; and 3) is kept secret by its owner for purposes of preventing its use by others. Application software and all other documentation, or any other product, prepared by the Contractor, Subcontractor, or supplier at the expense of the Owner for specific use on the facility being constructed under the Contract shall not be considered proprietary.

All submitted proprietary information shall describe the final record Work. No part of the Work covered by the proprietary agreement shall be modified after proprietary submittal acceptance until updated proprietary information has been submitted by the Contractor and accepted by the Owner. Updated proprietary information shall fully document all modifications to be implemented. All proprietary data shall be marked “PROPRIETARY” by the Contractor.

5-9 SURVEYS

5-9.01 Owner-Furnished Surveys

The Owner will show, to the best of its knowledge, the location and character of survey monuments on the Contract Drawings located within the construction area. From this information, the Contractor shall develop and make all additional detail surveys and measurements necessary for the construction of the Work.

5-9.02 Survey Monuments

The Contractor is responsible for locating all survey monuments. This work shall be done by or under the direction of a California Licensed Land Surveyor or a California Registered Civil Engineer authorized to practice Land Surveying, prior to the beginning of construction or maintenance work that could disturb or destroy a survey monument. Any monuments found shall be referenced and reset by or under the direction of a California Licensed Land Surveyor or a
California Registered Civil Engineer authorized to practice Land Surveying in accordance with Business and Professions Code Section 8771. On thin surface treatments, such as chip seals, the monuments can be covered in advance of the maintenance treatment with a suitable material and then removed to expose the monument. When survey monuments not shown on the plans are discovered, the Contractor shall bring them to the attention of the Owner prior to damaging them. Any damaged or destroyed Owner survey monuments will be reset by the Owner at the Contractor's expense. Any other damaged or destroyed survey monuments shall be reset by the Contractor in accordance with the Land Surveyors Act (Business & Professions Code 8700 et seq.).

When the Special Provisions require that the Contractor provide all surveys, the Contractor shall be responsible for referencing, resetting, and filing of corner records for all survey monuments disturbed or destroyed by construction activities in accordance with Business and Professions Code Section 8771.

All survey monuments and references shall be set or reset by or under the direction of a California Licensed Land Surveyor or a California Registered Civil Engineer authorized to practice Land Surveying.

5-9.03 Contractor Surveys

It is the Contractor's responsibility to arrange and pay for a diligent and thorough search for survey monuments. Except as set forth in this Section or in the Special Provisions, the Contractor shall be responsible for performing all necessary surveys to lay out and control the Work to the locations, elevations, lines, and dimensions shown or specified in the Contract. Any deviations must receive prior written approval of the Owner. All surveys affecting the line or elevation of underground drainage, sewers, or utilities, and all other work within public rights-of-way or easements, shall be performed by or under the direction and supervision of a California Registered Civil Engineer authorized to practice land surveying or a California Licensed Land Surveyor. The Contractor shall be responsible for protecting and perpetuating survey monuments affected by construction activities in accordance with Business and Professions Code Section 8771(b). The Contractor shall be responsible for the accuracy of the Contractor's own layout work, and shall be liable for the preservation of all established lines and grades. Stakes damaged or destroyed by the operations of the Contractor shall be replaced at the Contractor's expense.

5-10 RESPONSIBILITY FOR ACCURACY

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 is responsible for adjusting, correcting, and coordinating the work of all Subcontractors so that no discrepancies result.

5-11 DUTIES AND POWERS OF INSPECTORS

Inspectors are the authorized representatives of the Owner to observe work as it is being completed. Their duty is to inspect materials and workmanship of those portions of the Work to which they are assigned, either individually or collectively, under instructions of the Owner, and to report all deviations from the Contract. Inspectors are not authorized to permit any deviations from the requirements of the Contract. Any statements by Inspectors as to means and methods for performing Work are not owner directives, are suggestions only, and Contractor assumes all risk if it chooses to adopt or follow such suggestions.

5-12 INSPECTION

The inspection of the Work does not relieve the Contractor of the obligation to fulfill all Contract requirements. Any work, materials, or equipment not meeting the requirements and intent of the Contract will 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 approved and payment may have been made.

Reexamination of any part of the Work may be ordered by the Owner, and such part of the Work shall be uncovered by the Contractor. The Contractor shall pay the entire cost of such uncovering, reexamination, and replacement if the reexamined work does not conform to the Contract.

All work and materials furnished pursuant to the Contract shall be subject to inspection and approval by the Owner. The Contractor shall provide the Owner and Inspectors with access to the Work during construction and shall furnish every reasonable facility and assistance for ascertaining that the materials and the workmanship are in accordance with the requirements and intent of the Contract.

Unless authorized in writing by the Owner, any work done in the absence of an Inspector, whether completed or in progress, shall be subject to inspection. The Contractor shall furnish all tools, labor, materials, access facilities, and other facilities necessary to allow such inspection, even to the extent of uncovering or taking down completed portions of the Work. The Contractor shall pay all costs incurred, whether or not any defective work is discovered. The Contractor shall also be solely responsible for any costs associated with the removal of any defective work discovered during the inspection and the complete cost of reconstruction.

The Contractor shall notify the Owner of the time and place of any factory tests and submit test procedures for approval thirty (30) Calendar Days in advance for any tests that are required by the Contract. The Contractor shall report the time and place of preparation, manufacture or construction of any material for the Work, or any part of the Work, that the Owner wishes to inspect. The Contractor shall give five (5) Working Days notice in advance of the beginning of work on any such material or of the beginning of any such test to allow the Owner to make arrangements for inspecting and testing or witnessing.

5-13 QUALITY OF MATERIALS AND WORKMANSHIP

Unless otherwise allowed or required by the Special Provisions, all materials shall be new and of a quality at least equal to that specified. When the Contractor is required to furnish materials or manufactured articles or shall do work for which no detailed specifications are set forth, the materials or manufactured articles shall be of the best grade in quality and workmanship obtainable in the market. If not ordinarily carried in stock, the articles shall conform to the usual standards for first-class materials or articles of the kind required. The work performed shall secure the best standard of construction and equipment of the work as a whole or in part.

Materials shall be furnished in sufficient quantities and at such times to ensure uninterrupted progress of the Work. All required spare parts shall be delivered in new condition, not in a used or unknown condition, and with any certificates required. Materials, supplies, and equipment shall be stored properly and protected as required. The Contractor shall be entirely responsible for damage or loss by weather or other causes.

5-14 SUBSTITUTIONS

Certain materials, articles, or equipment may be designated in the Contract by brand or trade name or manufacturer together with catalog designation or other identifying information. Substitute material, article, or equipment which is of equal quality and of required characteristics for the intended purpose may be proposed for use, provided the Contractor complies with the requirements of the following paragraphs.

5-14.01 Written Request

Unless otherwise specified in the Special Provisions, the Contractor shall submit any request for substitution in writing no later than five (5) Working Days after Bid opening.
5-14.02 **Documentation**

If requested by the Owner, a proposal for substitution must be accompanied by complete information and descriptive data, including cost of operation, cost of maintenance, and physical requirements necessary to determine the equality of offered materials, articles, or equipment. The Contractor shall also submit such shop drawings, descriptive data, and samples as requested. The burden of proof of comparative quality, suitability, and performance of the offered proposal shall be upon the Contractor. The determination of equal quality suitability, and performance shall be at the sole discretion of the Owner. The Owner will examine such submittals with reasonable promptness. If the Owner rejects the request for such substitution, then one of the particular products designated by brand name in the Contract shall be furnished. Acceptance of substitution by the Owner shall not relieve the Contractor from responsibility for deviations from the Plans and Specifications or from responsibility for errors in submittals. Failure by the Contractor to identify deviations in the request material from the Plans and Specifications shall void the submittal and any action taken thereon by the Owner.

If mechanical, electrical, structural or other changes are required for proper installation and fit of substitute materials, articles or equipment, or because of deviations from the Contract, such changes shall not be made without the written consent of the Owner and shall be made by the Contractor without additional cost to the Owner. The Contractor shall pay the costs of design, drafting, architectural or engineering services and building alterations of the construction required to accommodate any Contractor substitution or construction error to maintain the original function and design.

5-15 **PREPARATION FOR TESTING**

The Contractor shall maintain proper facilities and provide safe access for inspection by the Owner to all parts of the Work and to the shops wherein parts of the Work are in preparation. Where the Contract requires work to be tested or approved, such work shall not be tested or covered up without at least a five (5) Working Day notice to the Owner of its readiness for inspection, unless the written approval of the Owner for such testing or covering is first obtained.

5-16 **MATERIALS SAMPLING AND TESTING**

Materials sampling and testing for purposes of Quality Control shall be the responsibility of the Contractor.

Testing shall be done to such standards and frequencies as set forth in the Specifications. References made in these documents to standard methods of testing materials shall make such standards a part of the Specifications.

Whenever a reference is made in the Specifications to a specification or test designation of any recognized national organization or State of California agency, and the number or other identification representing the year of adoption or the latest revision is omitted, it shall mean the specification or test designation in effect on the date of the original Notice to Contractors for the Work.

Materials to be used in the Work will be subject to sampling and tests by the Owner. The Contractor shall furnish the Owner with a list of the Contractor’s sources of materials and the locations at which such materials will be available for inspection. The list shall be submitted on an Owner form and shall be furnished to the Owner in time to permit the inspection and testing of materials in advance of their use.

When requested by the Owner, samples or test specimens of the proposed materials shall be prepared at the expense of the Contractor and furnished by the Contractor in such quantities and sizes required for proper examination and tests, and with complete information describing type, kind, or size of material, and its source. All samples shall be submitted in time to permit the making of proper tests, analyses, or examinations before incorporating the materials into the Work. No material shall be used in the Work unless or until it has been approved by the Owner. The Owner will perform material test in accordance with recognized standard practice.
Contractor shall pay the cost of the first retest and any subsequent retest of any area or material. The Owner will secure and test samples whenever necessary.

**5-17 APPROVAL OF MATERIALS**

**5-17.01 Sources of Supply**

The Owner’s approval at the source of supply may be required prior to procurement. Such approval shall not prevent subsequent disapproval or rejection of materials by the Owner if the quality is less then required by the Contract.

**5-17.02 Plant Inspection**

The Owner assumes no obligation to inspect materials at the source of supply. The Contractor is responsible for incorporating satisfactory materials into the Work, notwithstanding any prior inspections or tests.

The Owner will inspect materials at the source if the Contractor submits a written request and if the Owner deems the inspection necessary. The Contractor and the supplier will cooperate with and assist the Owner while performing the inspection. The Owner shall have access to all production areas of the plant.

**5-18 PROVISIONS FOR EMERGENCIES**

The Owner may provide necessary labor, material and equipment to correct any emergency resulting from the Contractor’s operation including noncompliance with the Contract, public convenience, safety, traffic control, and protection of work, persons and property. The nature of the emergency may prevent the Owner from notifying the Contractor prior to taking action. The costs of such labor, material, and equipment will be deducted from progress payments.

The performance of such emergency work under the direction of the Owner shall not relieve the Contractor from any damages resulting from the emergency.

**5-19 RIGHT TO RETAIN IMPERFECT WORK**

If any portion of the work done or materials furnished under the Contract shall prove defective or not in accordance with the Contract, and if the defect in the work or materials is not of sufficient magnitude or importance to make the work dangerous or undesirable, or if the removal of such work or materials is impracticable or will create conditions which are dangerous or undesirable, the Owner shall have the right and authority to retain the work or materials instead of requiring it to be removed and reconstructed or replaced. Progress payment deductions will be made as described in Section 8-9, “Deductions for Imperfect Work”, of these Specifications.

**5-20 REMOVAL OF REJECTED MATERIALS OR WORK**

The Contractor shall remove all rejected or condemned materials or structures brought to or incorporated in the Work within two (2) Calendar Days of the Owner’s written order. No such rejected or condemned materials shall again be offered for use in the Work. The Contractor shall, at the Contractor’s expense, bring into Contract compliance all rejected material or work in a manner acceptable to the Owner.

The Owner may bring into Contract compliance the rejected material if the Contractor fails to comply with this Section. All costs will be deducted from the Progress Payment.

**5-21 TEMPORARY SUSPENSION OR DELAY OF WORK**

The Owner has the authority to suspend or delay the Work, wholly or in part, for any period the Owner deems necessary. The Contractor shall immediately comply with the Owner’s written order to suspend or delay the Work. The suspended or delayed work shall be resumed only when conditions are favorable or methods are corrected, as ordered or approved in writing by the Owner. Public safety and convenience must be maintained throughout the suspension or delay in accordance with Sections 6-12, “Public Convenience and Safety”, and 6-13, “Public Safety and Traffic Control”, of these Specifications.
Delays due to suspension of work shall be classified as Avoidable or Unavoidable Delays in accordance with Section 7-12, “Delays”, of these Specifications.

Such suspension shall not relieve the Contractor of the Contractor's responsibilities as described in the Contract.

5-22 TERMINATION OF CONTRACT

5-22.01 Reasons for Termination

The Owner reserves the right to terminate the Contract for any of the reasons listed below:

5-22.01.A Contractor Bankrupt

If the Contractor is adjudged bankrupt or makes an assignment for the benefit of the Contractor's creditors, or if a receiver is appointed because of the Contractor's insolvency, the Owner may terminate the Contractor's control over the Work and so notify the Contractor and the Contractor's sureties.

5-22.01.B Completion Delay

The Owner may terminate the Contract if the Contractor has not completed the Work on or before the completion date adjusted by Contract Change Order. The Contractor is not entitled to any compensation and is liable to the Owner for liquidated damages for all time beyond such Contract completion date until the Work is completed, if the Owner chooses to complete the Work.

5-22.01.C Abandonment and Unsatisfactory Performance

The Owner may give the Contractor and the Contractor's surety written notice that the Contract will be terminated if the following breaches are not corrected:

The Contractor abandons the Work.

The Work or any portion is sublet or assigned without the Owner's consent.

The rate of progress is not in accordance with the Contract.

Any portion of the Work is unnecessarily delayed.

The Contractor willingly violates any terms or conditions of the Contract.

The Contractor does not supply sufficient materials or properly skilled labor.

The Contractor fails to promptly pay its Subcontractors.

The Contractor disregards laws, ordinances, or Owner orders.

The Contractor fails to respond to defective work notices.

The Contractor shall cease and terminate the Work if satisfactory arrangement for correction is not made within ten (10) Calendar Days from such notification.

5-22.01.D Termination of Contract for Convenience

The Owner may terminate the performance of work in whole or in part for any of the following reasons:

Issuance of an order of a court or other public authority having jurisdiction.

An act of government, such as a declaration of national emergency, causing material to be unavailable.

Conditions encountered during the Work make it impossible or impractical to proceed.

Such termination is in the best interest of the Owner.
5-22.02 Notice of Termination

The Owner may give written Notice of Termination of at least five (5) Calendar Days to the Contractor and the Contractor's sureties that the Contractor's control over the Work will be terminated for the reasons stated in the Notice of Termination. Owner may require the Surety to take over and perform the Work. The Owner may take over the Work at the Contractor's and Surety's expense if the surety does not commence performance within thirty (30) Calendar Days from the date of mailing the Notice of Termination. The Contractor shall be liable for any excess cost incurred by the Owner.

Immediately upon receipt of a Notice of Termination, except as otherwise directed in writing by the Owner, the Contractor shall:

1. Stop work under the Contract on the date and to the extent specified in the Notice of Termination.
2. Place no further orders or subcontracts for materials, services, or facilities except as necessary to complete the portion of the Work that is not terminated.
3. Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination.
4. Assign to the Owner, in the manner, at the times, and to the extent directed by the Owner, all of the rights, titles, and interests of the Contractor under the orders and subcontracts so terminated. The Owner shall have the right, at its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.
5. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts with the approval or ratification of the Owner. The Owner's approval or ratification shall be final.
6. Transfer title to the Owner, and deliver in the manner, at the times, and to the extent directed by the Owner, fabricated or unfabricated parts, work in process, completed work, supplies, other material produced as a part of, or acquired in connection with, the terminated work, and the completed or partially completed drawings, information, and other property that, if the Contract had been completed, would have been submitted to the Owner.
7. Sell, in the manner, at the times, to the extent, and at the price that the Owner directs or authorizes, any property of the types referred to in Item 6 of this Section (Section 5-22.02). The Contractor is not required to extend credit to any purchaser, and may acquire any such property under the conditions prescribed and at a price approved by the Owner. The proceeds of any such transfer or disposition shall be used to reduce any payments made to the Contractor under the Contract or be credited to the cost of the work covered by the Contract or paid as the Owner directs.
8. Complete performance of the Work not terminated by the Notice of Termination.
9. Take necessary action, or as the Owner directs, to protect and preserve the property related to the Contract in which the Owner has an interest.

5-22.03 Payments to Contractor Upon Termination of Contract

The Contractor and the Owner may agree upon the amount paid to the Contractor for the total or partial termination of the Work. The amount may include those items specified in Section 9, “Changes and Claims”, of these Specifications. However, such agreed amount shall not exceed the Total Contract Price, reduced by the amount of payments already made and the Contract price of work not terminated. The Contract shall be amended accordingly, and the Contractor shall be paid the agreed amount.

If the Contractor and the Owner fail to agree on the amount to pay the Contractor because of the termination of work under this Section, the Owner shall determine the amount due the Contractor.
If the work is not completed as provided in Section 5-22.02 in this Section of these Specifications, 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 Owner in finishing the work, plus all damages sustained or to be sustained by the Owner, any accrued liquidated damages, plus any unpaid claims on account of labor, materials, tools, equipment, or supplies contracted for by the Contractor for the Work, provided that sworn statements of said claims shall have been filed as required by Section 9, “Changes and Claims”, of these Specifications, the excess not otherwise required by these Specifications to be retained shall be paid to the Contractor. If the sum so expended exceeds the unpaid balance of the Total Contract Price, the Contractor and the Contractor's surety are liable to the Owner for the amount of such excess. If the surety completes the Work as provided above, such surety shall be subrogated to money due under the Contract and to money which shall become due in the course of completion by the surety.

The Contractor shall submit to the Owner any termination claim in the form and with the certification that the Owner prescribes. Such claim shall be submitted no later than ninety (90) Calendar Days from the effective date of termination unless the Owner grants one or more extensions, in writing, upon Contractor's written request transmitted within such ninety (90) day period or authorized extension. If the Contractor fails to submit a termination claim within the time allowed, the Owner may determine the amount, if any, due the Contractor because of the termination. The Owner will then pay the Contractor that amount.

5-22.04 Owner Completion

In the event of termination of the Contract, the Owner may take possession of and use all or any part of the Contractor's materials, tools, equipment, and appliances on the premises to complete the Work. The Owner assumes the responsibility for returning such equipment in as good condition as when it was taken over, reasonable wear and tear excepted. The items shall be returned when the Work is complete or sooner, at the Owner's discretion. The Owner agrees to pay a reasonable amount for the use of such materials and equipment.

The Owner may direct all or any part of the Work be completed by day labor and/or other contractors.

5-22.04.A Payment for Owner Completion

If the Owner completes the Work, no payment will be made to the Contractor until the Work is complete. All costs of completing the Work, including, but not limited to, legal expenses, Owner forces, administration and management, direct and indirect, shall be deducted from any sum due the Contractor. If the cost of completing the Work exceeds sums due the Contractor, the Contractor and the Contractor's surety shall, upon demand, pay the Owner a sum equal to the difference. If the Owner deducts the costs of completing the Work, the Owner will pay such sum to the Contractor and/or the Contractor's surety, as appropriate.

5-22.04.B Owner Completion Not a Waiver of Owner Rights

No act by the Owner before the Work is finally accepted shall operate as a waiver or stop the Owner from acting upon any subsequent event, occurrence or failure by the Contractor to fulfill the terms and conditions of the Contract. The rights of the Owner pursuant to this Section are in addition to all other rights of the Owner pursuant to the Contract, and at law or in equity.

5-23 TERMINATION OF UNSATISFACTORY SUBCONTRACTS

When any portion of the Work subcontracted by the Contractor is not prosecuted in a satisfactory manner, the Contractor shall immediately terminate the subcontract upon written notice from the Owner. The Subcontractor shall not again be employed for any portion of the work on which the Subcontractor's performance was unsatisfactory.
SECTION 6
LEGAL RELATIONS AND RESPONSIBILITIES

6-1 COMPLIANCE WITH LAWS AND REGULATIONS

The Contractor shall be familiar and comply with all Federal, State, and local laws, ordinances, codes and regulations which in any manner affect the Work, those engaged or employed in the Work or the material or equipment used in or upon the Work, or in any way affect the conduct of the Work. No pleas of misunderstanding of such laws, ordinances, codes, or regulations or of ignorance of the same on the part of the Contractor shall modify the provisions of the Contract. The Contractor and the Contractor’s surety shall indemnify and save harmless the Owner and the Owner’s officers, officials, agents, employees, volunteers, members, affiliates and their duly authorized representatives against any claim for liability arising from, or based upon, the violation of any such law, ordinance, regulation, decree, or order, whether by the Contractor or by the Contractor’s employees.

The attention of the Contractor is directed to certain laws that affect the Contract. The listing of these laws in this Section is not to be construed as a listing of all applicable laws. The Contractor is solely responsible for familiarity and compliance with all applicable laws. Particular attention is called to the following:

6-1.01 Hours of Labor

Eight (8) 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 (8) hours of labor in any Calendar Day, and forty (40) hours of labor in any calendar week, from any person employed by the Contractor in the performance of the Work under the Contract, except as permitted under the provisions of Labor Code Sections 1810 to 1815 of the Labor Code of the State of California. The Contractor shall forfeit, as penalty to the Owner, twenty-five dollars ($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 (8) hours and for each calendar week during which any worker is required or permitted to labor more than forty (40) hours, in violation of the provisions of such Labor Code.

Overtime and shift work may be established by the Contractor with reasonable notice and the written permission of the Owner. No work other than overtime and shift work shall be done between the hours of 6:00 p.m. and 7:00 a.m., except such work as is necessary for the proper care and protection of work already performed or except in case of an emergency. Failure of the Contractor to perform the Work in accordance with this policy shall be cause for termination under Section 5-22, "Termination of Contract", of these Specifications.

6-1.02 Prevailing Wage

Pursuant to Labor Code Section 1770, the Contractor and the Contractor’s Subcontractors shall pay not less than the prevailing rate of per diem wages, including, but not limited to, overtime, Saturday, Sunday, and holiday work, travel and subsistence, as determined by the Director of the California Department of Industrial Relations pursuant to Labor Code Section 1773.

The wage rates determined by the Director of the California Department of Industrial Relations refer to expiration dates. Prevailing wage determinations with a single asterisk (*) after the expiration date that are in effect on the date of Notice to Contractors remain in effect for the duration of the project. Prevailing wage determinations with double asterisks (**) after the expiration date indicate that the basic hourly wage rate, overtime and holiday wage rates, and employer payments to be paid for work performed after this date have been determined. If work
extends past this date, the new rate shall be paid and should be incorporated in contracts entered. The Contractor should contact the Department of Industrial Relations as indicated in the prevailing wage determinations to obtain predetermined wage changes. All determinations that do not have double asterisks (**) after the expiration date remain in effect for the duration of the project.

The Contractor and the Contractor’s Subcontractors shall forfeit, as penalty to the Owner, not more than fifty dollars ($50) per Calendar Day or portion thereof, for each worker paid less than the prevailing wage rates for any work done under the Contract by the Contractor or by any Subcontractor. The Contractor shall comply with the provisions of Labor Code Section 1775. In addition to said penalty, the Contractor or Subcontractor shall pay each worker the difference between the prevailing wage and the amount paid for every hour the worker was paid less than the prevailing wage.

6-1.03 Payroll Records

Contractor shall comply with Labor Code Section 1776. Regulations implementing Section 1776 are located in Section 16000 and Sections 16401 through 16403 of Title 8, California Code of Regulations. The Contractor shall be responsible for compliance by the Contractor’s Subcontractors.

The Contractor and the Contractor’s Subcontractors shall keep accurate payroll records, showing the name, address, Social Security number, straight time and overtime hours worked each day and week, and the actual wages paid to each journeyman, apprentice, worker, or other employee employed in connection with the Work. Such records shall be certified and available for inspection at all reasonable hours at the principal offices of the Contractor and the Contractor’s Subcontractors in a manner set forth in Labor Code Section 1776. The Contractor and the Contractor’s Subcontractors shall file a certified copy of the records enumerated above with the Owner within ten (10) Calendar Days after receipt of a written request. The Contractor shall be held responsible for all Subcontractors’ compliance with this requirement.

The non-compliance penalties specified in subdivision (g) of Labor Code Section 1776 may be deducted from progress payments to the Contractor.

6-1.04 Nondiscrimination

Attention is directed to Labor Code Section 1735, which prohibits discrimination in the employment of persons upon public works because of race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, or sex of such persons, and provides for penalties.

6-1.05 Apprentices

The Contractor shall comply with Labor Code Section 1777.5, concerning the employment of apprentices. The Contractor shall be responsible for compliance by all Subcontractors.

6-1.06 Workers’ Compensation

Pursuant to Labor Code Section 1860, in accordance with the provisions of Section 3700 of the Labor Code, the Contractor is required to secure the payment of compensation to his employees.

6-1.07 Fair Labor Standards

The Contractor shall comply with the Fair Labor Standards Act of 1938 as amended (29 U.S.C. 3201 et seq.) as applicable.
6-1.08 **Contractor’s License**

The Contractor shall comply with Chapter 9 of Division 3 of the Business & Professions Code.

6-1.09 **Use of Pesticides**

The Contractor shall comply with all rules and regulations that govern the use of pesticides required in the performance of the Work, including any certifications that may be required for purchase, use, storage or application.

Pesticides include, but are not limited to, herbicides, insecticides, fungicides, rodenticides, germicides, nematocides, bactericides, inhibitors, fumigants, defoliants, desiccants, soil sterilants, and repellants.

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.

6-1.010 **Reporting Requirements and Sanctions**

Failure to provide specific information, records, reports, certifications, or any other documents required for compliance with the Contract will be considered noncompliance. At a minimum, documents required include:

1. **List of Subcontractors**

A list of Subcontractors is required from the Contractor and each Subcontractor with a lower tier Subcontractor. This list is due within ten (10) Calendar Days after the date of the preconstruction conference or within ten (10) Calendar Days after the date of award of the subcontract. The later of the two dates will apply.

2. **Certified Payroll Reports**

Certified Payroll Reports are required from the Contractor and each Subcontractor, regardless of the subcontract amount or the type of procurement, for every payroll period in which work is performed. These reports are due within fourteen (14) Calendar Days of the ending date of the payroll period.

3. **Fringe Benefit Statement**

A Fringe Benefit Statement is required from the Contractor and each Subcontractor if fringe benefits are paid to an approved plan, fund, or program. The statement is due with first certified payroll report and any time the fringe benefit amounts change. The statement is not required if the fringe benefits are paid in cash to the employees.

4. **Other Documentation**

When required by the Special Provisions, other reporting documentation may be required depending on the source of funding for the project.

If the Contractor fails to comply with the provisions of this Section, the Contractor will be advised of the specific deficiencies and requested to make immediate corrections. The Contractor will also be advised that monetary deductions will be made for failure to effect corrections or delinquencies.
If the Contractor fails to correct a deficiency in the reporting requirements within fifteen (15) Calendar Days after notification, a deduction may be made. In such cases, the deduction will be ten percent (10%) of the estimated value of the work done during the month, except that the deduction will not exceed ten thousand dollars ($10,000), nor be less than one thousand dollars ($1,000), and will be deducted from the next progress payment.

Deductions for non-compliance 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 will be made separately and cumulate 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.

6-1.011 Subcontracting

The Contractor must comply with Section 4101 to Section 4113, inclusive, of the Public Contract Code.

6-1.012 Occupational Safety and Health

The Contractor must comply with all applicable provisions of the California Occupational Safety and Health Act (Labor Code Sections 6300 et seq.). The foregoing includes, but is not limited to, all applicable Title 8 Safety Orders issued by the State of California Occupational Safety and Health Administration (Cal/OSHA). Failure of the Owner to suspend the work or notify the Contractor of the inadequacy of the safety precautions or non-compliance with existing laws and regulations shall not relieve the Contractor of this responsibility.

The Contractor shall prepare and submit a Health and Safety Plan which complies with all relevant regulations within 15 Calendar Days after Notice to Proceed and prior to starting any field work.

6-1.013 Not used

6-2 INDEMNIFICATION

6-2.01 Contractor's Performance

To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless the Owner, its officers, employees, agents, Consulting Engineer, Owner and Consulting Engineer’s engineering consultants, the County of Yuba, Reclamation District 784, the State of California and duly authorized representatives of each of them, from and against any and all losses, claims, demands, damages, costs, expenses, attorney's fees, or liability of every nature arising out of or in any way connected with the performance or attempted performance of the provisions of this Contract, caused in whole or in part by any negligent or willful act or omission of the Contractor, its officers, employees, or agents, or anyone directly or indirectly acting on behalf of the Contractor, regardless of whether caused in part by a party indemnified hereunder. Nothing contained in the foregoing indemnity provisions shall be construed to require the Contractor to indemnify the indemnified party in contravention of Section 2782 of the Civil Code for the active or sole negligence or willful misconduct of that indemnified party.

To the fullest extent permitted by law, the Contractor's duty to defend shall extend, without limitation, to any suit or action founded upon any losses, claims, demands, damages, costs, expenses, attorney's fees, or liability of every nature arising out of or in any way connected with the performance or attempted performance of the provisions hereof, or in any way arising out of or connected with this Contract.
The defense and indemnity obligations expressly extend to and include any and all claims, demands, damages, costs, expenses, or liability occasioned as a result of damages to adjacent property caused by the conduct of the Work.

The defense and indemnity obligations expressly extend to and include any and all claims, demands, damages, costs, expenses, or liability occasioned as a result of the violation by the Contractor, the Contractor’s agents, employees, or independent contractors, Subcontractors or suppliers of any provisions of federal, State or local law, including applicable administrative regulations.

The defense and indemnity obligations also expressly extend to and include any claims, demands, damages, costs, expenses, or liability occasioned by injury to or death of any person, or any property damage to property owned by any person while on or about the site or as a result of the Work, whether such persons are on or about the site by right or not, whenever the Work is alleged to have been a contributing cause in any degree whatsoever.

In claims against any person or entity herein indemnified that are made by an employee of the Contractor or an employee of any of the Contractor's agents, independent contractors, Subcontractors or suppliers, a person indirectly employed by the Contractor or by any of the Contractor's agents, independent contractors, Subcontractors or suppliers, or anyone for whose acts the Contractor or any of the Contractor's agents, independent contractors, Subcontractors or suppliers may be liable, the defense and/or indemnification obligation herein shall not be limited by any limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or the Contractor's agents, independent contractors, Subcontractors or suppliers under workers' compensation acts, disability acts, or other employee benefit acts.

The defense and indemnification obligations herein shall not be limited by any assertion or finding that the person or entity indemnified is liable by reason of a non-delegable duty.

The defense and indemnification requirements herein set forth shall extend to claims occurring after this Contract is terminated as well as while it is in force.

6-2.02 No Limitation of Liability for Indemnification

The defense and indemnities set forth in this Section shall not be limited by the insurance requirements set forth in the Contract.

6-3 CONTRACTOR’S LEGAL ADDRESS

Both the address given in the Bid and the Contractor's office in the vicinity of the Work are designated as places that samples, notices, letters, or other articles or communications to the Contractor may be mailed or delivered. The delivery to either of these places shall be deemed sufficient service to the Contractor and the date of such service shall be the date of delivery. The address named in the Bid may be changed at any time by written notice from the Contractor to the Owner. Nothing herein shall be deemed to preclude or render inoperative the service of any drawing, sample, notice, letter or other article or communication to the Contractor.

6-4 CONTRACTOR NOT AN AGENT OF OWNER

The Contractor shall be an independent contractor and not an employee, agent, or other representative of the Owner. Nothing in the Contract shall be construed to create any relationship of joint venture, partnership or any other association of any nature whatsoever between the Owner and the Contractor other than that of owner and independent contractor. The Owner shall have the right to direct the Contractor as provided in the Contract. The aforementioned right of supervision shall not reduce or abrogate the Contractor's liability of all damage or injury to
persons, public property, or private property that may arise directly or indirectly from the Contractor's execution of the Work.

6-5 SUBSTITUTION OF SUBCONTRACTORS

The Contractor shall not, without the written consent of the Owner: (a) substitute any party as Subcontractor in place of the Subcontractor designated in the original bid; (b) permit any such subcontract to be assigned or transferred; or (c) allow the subcontracted work to be performed by anyone other than the original Subcontractor listed on the bid. Consent for substitution or subletting shall only be given:

1. When the Subcontractor listed in the bid, after having reasonable opportunity to do so, fails or refuses to execute a written contract that is based upon the Plans and Specifications for the project or the terms of such Subcontractor's written bid and is presented to the Subcontractor by the Contractor; or

2. When the listed Subcontractor becomes bankrupt or insolvent; or

3. When the listed Subcontractor fails or refuses to perform the subcontract; or

4. When the listed Subcontractor fails or refuses to meet the bond requirements of the Contractor as set forth in California Public Contract Code Section 4108; or

5. When the Contractor demonstrates to the Owner, subject to the further provisions set forth in California Public Contract Code Section 4107.5, 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 Owner determines that the work performed by the listed Subcontractor is substantially unsatisfactory and not in substantial accordance with the Contract, or that the Subcontractor is substantially delaying or disrupting the progress of the work; or

8. When the listed Subcontractor is ineligible to work on a public works project pursuant to Section 1777.1 and 1777.7 of the Labor Code.

In the event of such substitution, the Owner will give at least seven (7) Calendar Days notice in writing to the listed Subcontractor, unless they have advised the Owner in writing that they have knowledge of the Contractor's request for the substitution.

6-6 ASSIGNMENT OF CONTRACT

The Contract or the performance of the Contract may not be assigned by the Contractor except with the written consent of Owner and Surety. Contractor's and Surety's obligations to Owner under this Contract shall survive, and not be diminished by, any contract assignment.

6-7 ASSIGNMENT OF MONIES

The Contractor may assign monies due the Contractor under the Contract, and such assignment will be recognized by the Owner, if given proper notice, to the extent permitted by law. Any assignment of monies shall be subject to all deductions provided for in the Contract. All money withheld may be used by the Owner for the completion of the Work if the Contractor defaults.
6-8 PROTECTION OF OWNER AGAINST PATENT CLAIMS

The Contractor shall assume all costs arising from the use of patented materials, equipment, devices, and processes on or incorporated in the Work and shall indemnify and hold harmless the Owner and the Owner’s officers, officials, agents, employees, volunteers, members, affiliates and their duly authorized representatives from all actions for, or on account of, the use of any patented materials, equipment, devices, or processes in the construction of, or subsequent operation of, the Work. Before final payment, if requested by the Owner, the Contractor shall furnish acceptable proof of a proper release from all costs or claims arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the Work.

6-9 RESPONSIBILITY OF THE CONTRACTOR

The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, procedures, and coordination of all portions of the Work under the Contract, unless otherwise provided in the Contract.

The Work shall be under the Contractor’s responsible care and charge until completion and final acceptance, and the Contractor shall bear the entire risk of injury, loss, or damage to any part by any cause. The Contractor shall rebuild, repair, restore, and make good all injuries, losses or damage to any portion of the Work or the materials occasioned by any cause, and shall bear the entire expense.

In no case shall the Contractor’s use of Subcontractors in any way alter the position of the Contractor or the Contractor’s sureties with relation to the Contract. When a Subcontractor is used, the responsibility for every portion of the Work shall remain with the Contractor. No Subcontractor will be recognized as having a direct contractual relationship with the Owner. All persons engaged in the Work under the Contract will be considered as employees of the Contractor and their work shall be subject to all the provisions of the Contract. The Owner will deal only with the Contractor who is responsible for the proper execution of the Work. The Contractor shall pay when due all valid claims of Subcontractors, suppliers, and workmen with respect to the Work.

The mention herein of any specific duty or responsibility imposed upon the Contractor shall not be construed as a limitation or restriction of any other responsibility or duty imposed upon the Contractor by the Contract, said reference being made herein merely for the purpose of explaining the specific duty or responsibility.

The Contractor shall do all of the work and furnish all labor, materials, tools, equipment, and appliances, except as otherwise herein expressly stipulated, necessary or proper for performing and completing the Work herein required, including any change order work or disputed work directed by the Owner in conformity with the true meaning and intent of the Contract drawings, Specifications, and all provisions of the Contract, within the time specified.

If the Contractor discovers any discrepancies during the course of the Work between the Contract drawings and conditions in the field, or any errors or omissions in the Contract drawings and conditions in the field, or any errors or omissions in the Contract drawings, the Specifications, or in the layout given by stakes, points, or instructions, it shall be the Contractor's duty to inform the Owner immediately, and the Owner shall promptly verify the same. Any work done after such discovery until authorized by the Owner, will be done at the Contractor's risk.

6-10 PERMITS AND LICENSES

The Contractor shall, at the Contractor’s sole expense, obtain all necessary permits and licenses for the construction of the Work, give all necessary notices, pay all fees required by law, and comply with all laws, ordinances, rules and regulations relating to the Work and to the
The preservation of the public health and safety. The Contractor shall also procure all permits and licenses necessary for the normal conduct of the Contractor’s business and construction operations.

The California Environmental Quality Act of 1970 (CEQA) may be applicable to permits, licenses, and other authorizations that the Contractor shall obtain from local agencies in connection with performing the Work. The Contractor shall comply with the provisions of CEQA in obtaining such permits, licenses, and other authorizations, which will be obtained in time to prevent delays to the Work.

The Contractor shall comply with permits, licenses, or other authorizations applicable to the Work obtained by the Owner in conformance with the requirements in CEQA.

6-11 GENERAL SAFETY REQUIREMENTS

6-11.01 Compliance With Safety & Health Regulations

Safety is a prime consideration in all Owner contracts. The Contractor is solely responsible for all safety within the project boundaries and shall conform to all applicable occupational safety and health standards, rules, regulations, and orders established by the State of California or Federal Government. The Contractor shall, within 10 Calendar Days of being requested, submit to the Owner a copy of their Injury Illness Prevention Program (IIPP) (including Site Safety Plan and Code of Safe Work Practices) for review. The Contractor is required to fulfill the requirements of these programs during the prosecution of their work.

6-11.02 24-Hour Contact Information

The Contractor shall have on record with the Owner the following twenty-four (24) hour emergency contact numbers:

- Traffic control device supplier: Supplier of barricades, steel plates, delineators, channelizers, construction signs, and other traffic control equipment to be used during construction.

- Contractor representative: An employee of the Contractor having the authority to make decisions and the ability to respond to an emergency on the project at any time.

- Safety representative: The Contractor’s Safety Representative shall have the authority to make decisions regarding safety and health concerns on the project and to direct the Contractor’s personnel to abate any hazard identified by the Owner.

6-11.03 Work During Hours of Darkness

Working areas utilized by the Contractor during the hours of darkness shall be illuminated to conform to the minimum illumination intensities established by California Occupational Safety and Health Administration, Construction Safety Orders and the Traffic Control Plans (TCP).

6-12 PUBLIC CONVENIENCE AND SAFETY

6-12.01 Public Convenience

All work within public streets and/or roadway rights-of-way shall be done in an expeditious manner and cause as little inconvenience to the traveling public as possible. Vehicles, bicycles, and pedestrians must be allowed to pass at all times except during an emergency closure. See Section 7-8, “Peak Hours, Hours of Darkness, Holidays and Weekends”, of these Specifications for time limitations.
6-12.02 Pedestrian and Bicyclist Access on Public Roadways

The Contractor shall not block the movement of pedestrian or bicycle traffic along public roadways in the project area unless such blockage is specifically identified in the drawings. The Contractor shall provide for pedestrian and bicycle traffic by phasing construction operations or by providing alternative pedestrian and bicyclist access through or adjacent to construction areas. Proper advance notice signage with reasonable detours shall be installed and maintained through all phases of construction. Access to pedestrian and bicycle devices at traffic signals shall be maintained at all times. At no time shall pedestrians be diverted into a portion of the street used for vehicular traffic or on to private property unless adequate lane closure signage is in place. Pedestrian and bicycle access shall consist of four-foot (4’) wide bridges across trenches and four-foot (4’) wide passageways through construction areas. Hand railings for pedestrians shall be provided when required by Cal/OSHA Regulations or the Americans with Disabilities Act (ADA) on each side of each bridge or passageway to protect pedestrians from hazards caused by construction operations or adjacent vehicular traffic.

Railings or barricades, which border passageways located in roadway areas, shall be reflectorized on the side facing oncoming traffic.

6-12.03 Written Notification To Residences and Businesses

The Contractor shall notify, in writing, residents and business establishments along the route of the Work at least fourteen (14) Calendar Days prior to road closures and at least five (5) Calendar Days prior to disruption of ingress and egress. The notice provided to the residences or businesses shall include, at a minimum, schedule of closures with estimated closure times, closure location, alternate route or detour, and name and twenty-four (24) hour phone number of a contact person employed by the Contractor.

The Contractor shall notify, in writing, residents and business establishments along the route of the Work at least five (5) Calendar Days prior to placing parking restrictions within the City or County right-of-way. The notice provided to the residences or businesses shall include, at a minimum, schedule of parking restrictions with estimated times, location, and a name and twenty-four (24) hour phone number of a contact person employed by the Contractor.

6-12.04 Access To Driveways, Houses and Buildings

Access and passable grades shall be maintained at all times for business establishments during construction. Safe and passable pedestrian, bicyclist, and vehicular access shall be provided and maintained to fire hydrants, homes, commercial and industrial establishments, churches, schools, parking lots, service stations, motels, fire and police stations, hospitals, and establishments of similar nature. Access to these facilities shall be continuous and unobstructed unless otherwise approved. Ramps and driveways shall not have “lips” or elevation differences greater than three-eighths of an inch (3/8”) or one (1) cm.

When abutting property owner’s access across the right-of-way line is to be eliminated, repaired, or replaced under the Contract, the existing access shall not be closed until the replacement access facilities are completed and functional.

6-12.05 Property Damage

Any property damage caused by the Contractor shall be repaired at the Contractor’s expense to the satisfaction of the Owner.
6-12.06 Erection of Signs To Expedite Passage of Vehicles

The Contractor shall erect such warning and directional signs as necessary or as directed by the Owner for expediting the passage of public traffic through or around the Work and the approaches. All warning and directional signs shall comply with Section 6-13, “Public Safety and Traffic Control”, in this Section of these Specifications; Section 12, “Construction Area Traffic Control”, of these Specifications; and the Caltrans Manual of Traffic Controls.

6-12.07 Traffic Obstructions, Delays and Inconveniences

All public traffic shall be permitted to pass through the Work and the Contractor shall conduct operations that offer the least possible obstruction, delay, and inconvenience to the public.

6-12.08 Work On Private Property

The Contractor must obtain written permission from the owner of any privately owned property prior to beginning any work, storing materials or otherwise conducting any operations on said property. The written approval from the property owner must be on file with the Owner before any operations will be permitted on said property.

6-12.09 Hazardous Conditions Created

Whenever the Contractor’s operations create a condition hazardous to pedestrians, bicyclists, or the traveling public, the Contractor shall, at the Contractor’s own expense, furnish, erect and maintain any fences, temporary railing (Type K), barricades, lights, signs and other devices necessary or as directed by the Owner to prevent accidents or damage or injury to the public or property.

If needed for public use, roadway excavation shall be conducted to maintain a smooth and even surface satisfactory for use by public traffic at all times. The surface of the roadbed shall be kept in a smooth, even condition free of humps and depressions, satisfactory for the use of public traffic as determined by the Owner.

Temporary facilities that the Contractor uses to perform the Work or store or stage material or equipment shall not be installed or placed where they will interfere with the free and safe passage of public vehicular, bicycle, or pedestrian traffic.

6-13 PUBLIC SAFETY AND TRAFFIC CONTROL

6-13.01 General

All traffic controls shall be installed in accordance with the latest edition of the Caltrans “Manual of Traffic Controls for Construction and Maintenance Work Zones”.

6-13.02 Responsibility For Safety

It is the Contractor’s responsibility to provide for public safety and traffic control. The Owner may review the Contractor’s operations and inform the Contractor if an unsafe or hazardous condition is observed. The Contractor may be directed verbally or via Field Instruction, letter, or other means to abate the hazard. The Contractor must comply with all directives for hazard abatement immediately and within the timeframe imposed by the Owner.

6-13.03 Passage of Emergency Vehicles

The Contractor shall provide for the uninterrupted passage of emergency vehicles through the Work zone at all times regardless of the controlled traffic conditions in place at the time.
6-13.04  **Furnishing, Installing, and Maintaining Traffic Controls**

Signs, lights, barriers, fences, temporary railing (Type K), barricades, and other facilities shall be furnished, erected and maintained by the Contractor to provide an adequate warning to the public of dangerous conditions to be encountered during construction at all hours of the day or night. Warning and directional signs shall be erected and maintained as required by the Owner and by law. All traffic controls shall be installed as required by this Section and Section 12, “Construction Area Traffic Controls”, of these Specifications.

6-13.05  **Inadequate Traffic Controls and After-Hour Maintenance and Repairs**

Should the Contractor appear negligent in furnishing and maintaining sufficient traffic control devices or protective measures or fail to provide flaggers as necessary to control traffic, the Owner may direct the Contractor, at the Contractor's expense, to abate the hazard.

Should the Owner point out the inadequacy of warning devices and protective measures, that action shall not relieve the Contractor from responsibility for public safety or abrogate the obligation to furnish and pay for these devices and measures.

Should the Contractor fail to properly furnish or maintain traffic controls, or correct a hazard caused by inadequate or inappropriate traffic control, the Owner will abate the hazard. All Owner costs to abate the hazard shall be reimbursed by the Contractor or deducted from the progress payment. If the Contractor is not available to perform after-hour maintenance and repair to traffic control devices, the Owner will correct the situation and deduct all costs from the progress payment.

6-13.06  **Competent Flaggers**

The Contractor shall provide competent and courteous flaggers to control traffic when necessary or requested by the Owner. All flaggers shall be trained as required by Cal/OSHA regulations and shall be prepared to provide verification of such training to the Owner when requested.

6-13.07  **Construction Signs**

The Contractor is responsible for supplying, installing and maintaining all construction signs and posts. The Contractor will receive direction from the Owner as to the specific locations and placement of each sign. Regulatory signs or guide signs shall be supplied, erected and maintained by the Contractor, subject to Owner approval, and shall be protected from damage from construction activities by the Contractor through the duration of the project.

6-13.08  **Temporary Bridging of Excavations and Trenches**

Whenever necessary or requested by the Owner, excavations shall be bridged with steel plates to allow an unobstructed flow of traffic.

1.  Asphalt concrete “cutback” shall be placed around the edges of the plate to provide a ramp and smooth transition from the pavement to the plate to minimize wheel impact. All ramping must be accomplished to provide a minimum angle of approach of twelve horizontal to one vertical (12H:1V).

2.  Bridging shall be secured against displacement by using railroad spikes or other approved fastening device.

3.  Bridging shall be placed and secured to work within the minimum noise levels indicated in the [to be completed ].
4. Steel plates used for bridging shall extend at least one (1) trench width on each side beyond the edges of the trench. Any deviations from these requirements must be designed by a registered engineer and reviewed by the Owner.

5. Depending upon the depth of the excavation, soil type, vibration and other variables, the trench may require shoring to support bridging. The Contractor should confer with a California Licensed Professional Civil Engineer or other appropriate professional if there is any question about the capability of the excavation and bridging to support the forces of traffic.

<table>
<thead>
<tr>
<th>WIDTH OF EXCAVATION</th>
<th>MINIMUM THICKNESS OF STEEL PLATES</th>
</tr>
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<tbody>
<tr>
<td>2.0 ft. or less (0.6 m or less)</td>
<td>7/8 inch (22mm)</td>
</tr>
<tr>
<td>3.0 ft. (0.9 m)</td>
<td>1 inch (25 mm)</td>
</tr>
<tr>
<td>4.0 ft. (1.2 m)</td>
<td>1-1/4 inch (32mm)</td>
</tr>
</tbody>
</table>

In sidewalk areas, one and one-eighth inch (1-1/8") plywood may be substituted for steel plating. Such plywood shall be secured to prevent removal by unauthorized persons. Asphalt concrete “cutback” or other non-displaceable material must be used to provide a ramp for pedestrian and handicap access. All ramping must be accomplished to provide a minimum angle of approach of twelve horizontal to one vertical (12H:1V). Vehicular travel over backfilled but unpaved excavations will not be allowed, unless the Contractor provides a temporary surface suitable for driving consisting of at least two inches (2") of plant mix asphalt over six inches (6") of aggregate base, concrete slurry (completely cured), or traffic plates placed over the excavated area of sufficient width and thickness as indicated in this Section.

6-13.09 Entering and Leaving the Construction Zone

Construction equipment shall enter and leave the roadway by moving in the direction of public traffic. All movements of workmen and construction equipment on or across lanes open to public traffic shall be performed in a safe manner that will not endanger the workmen or the public. When leaving a work area and entering a roadway carrying public traffic, the Contractor's equipment operator shall yield to public traffic.

6-13.010 Existing Traffic Signal and Lighting Systems, Signs and Pavement Markings

Existing traffic signal and highway lighting systems shall be kept in operation during progress of the Work. When traffic signal shutdown is permitted by the Owner, the Contractor shall notify the Owner at least seven (7) Calendar Days prior to shutdown. Traffic signal detectors accidentally cut or damaged during construction shall be repaired or replaced by the Contractor at the Contractor's expense and be operational within seventy-two (72) hours. When traffic signals are approved for shutdown, the Contractor shall control traffic by use of flaggers as directed by the Owner. "STOP" signs will not be permitted at these locations.

Existing signs and pavement markings shall be maintained by the Contractor and shall not be removed or altered without Owner approval.
6-13.011 **Bus Stops**

If construction operations will obstruct a bus stop, the Contractor shall notify the Owner seven (7) Calendar Days in advance of beginning that portion of the Work and make provisions agreeable to the Owner to provide an alternate location where people can safely board the bus.

6-13.012 **Dust**

Water or dust palliative shall be applied as ordered by the Owner for the alleviation or prevention of dust nuisance caused by the Contractor's operations as provided in the relevant technical provision of these Specifications.

6-13.013 **Removal of Spillage From Roadway**

The Contractor shall immediately remove any spillage resulting from hauling operations along or across any public traveled way.

6-14 **TRAFFIC CONTROL PLANS (TCP)**

6-14.01 **Traffic Pattern Changes**

The Contractor shall notify the Owner in advance of the Contractor's desire to change any existing traffic patterns. Traffic lanes for public use shall be at least ten feet (10') in width. Whenever feasible an additional four feet (4') shall be provided for a bicycle lane. If it is not feasible to provide a separate bicycle lane, the Contractor shall post signage before the construction area stating, “SHARE the Road with Bicyclists”. Additionally, when the lane is shared, the Contractor shall post signage for a maximum speed limit of 25 MPH in the shared lane. For traffic pattern changes that do not require a road closure, the Contractor shall provide the Owner with a minimum of seven (7) Calendar Days advance notification, unless otherwise approved or deemed an emergency lane closure by the Owner. For all road closures, the Contractor shall provide the Owner with a minimum of twenty-eight (28) Calendar Days notice prior to the desired closure date, unless otherwise approved or deemed an emergency road closure by the Owner.

6-14.02 **Traffic Control Plans (TCP)**

Unless the requirement has been modified by 1) the Special Provisions, 2) specifications for development or frontage work, or 3) an encroachment permit issued by the City or by the County, the Contractor shall submit a Traffic Control Plan (TCP) to the Owner for review. The TCP shall show traffic control measures to be used for vehicles, bicyclists, and pedestrians affected by the construction. Five (5) sets of the TCP shall be submitted on eleven-inch by seventeen-inch (11”x17”) (minimum) paper. The Contractor will not be allowed to begin work associated with the road or lane closure until the TCP is reviewed by the Owner.

TCP’s for the following types of closures will be reviewed and returned within fourteen Calendar Days:

- Single lane closures that cannot be set up in accordance with the guidelines of the current edition of the Caltrans “Manual of Traffic Controls”

- All multi lane (in the same direction of travel) closures

- All lane closures outside the working hours provided in the Contract or permit, including Saturdays, Sundays, and holidays
• Requests for lane closures on streets designated as "no closures permitted during the holiday season"

• Closures affecting pedestrian and bicycle facilities

• All “staged” construction traffic control changes

• All road closures

• All shifts of traffic which will be implemented on a twenty-four (24) hour basis

The Owner reserves the right to extend the above time periods or to request for and review a TCP if special conditions warrant.

Detours used exclusively by the Contractor for hauling materials and equipment shall be constructed and maintained by the Contractor at the Contractor’s expense. If the Contractor’s operations are damaging the roadway, the Owner has the authority to regulate the Contractor’s operations and direct the Contractor to repair the roadway at the Contractor’s expense.

6-15 BARRICADING OPEN TRENCHES

Any excavation permitted by the Owner to be left open shall be barricaded with Type II or Type III barricades with flashers. Signs stating "OPEN TRENCH" shall be posted on all sides of the excavation. All open excavated areas shall be barricaded with at least two (2) Type III barricades at the end of the excavation that faces oncoming traffic. Any excavation within four feet (4’) of the traveled way, not protected by K-rail or a similar traffic control barrier approved by the Owner, shall be backfilled at the end of the work shift or plated in accordance with Section 6-13.08, "Temporary Bridging of Excavations and Trenches", in this Section of these Specifications.

6-16 EXISTING UTILITIES

6-16.01 General

The Contractor shall coordinate and fully cooperate with the Owner and utility owners for the location, relocation, and protection of utilities. The Contractor’s attention is directed to the existence of utilities, underground and overhead, necessary for all buildings in the Work area. The Contractor shall arrange with utility owners for the location of service lines serving these buildings in advance of the actual construction and for the relocation of such facilities, if necessary, by the utility owner or the Contractor.

6-16.02 Maintenance and Protection

Unless otherwise shown or specified in the Contract, the Contractor shall maintain in service all drainage, water, gas, sewer lines, power, lighting, telephone conduits, and any other surface or subsurface utility structure that may be affected by the Work. However, the Contractor, for convenience, may arrange with individual owners to temporarily disconnect service lines or other facilities along the line of the Work. The cost of disconnecting and restoring such utilities shall be borne by the Contractor.

Unless otherwise specified in the Special Provisions, the Contractor shall protect all existing utilities on all projects being constructed, whether inside or outside of highway rights-of-way. The utility owner in these cases may elect to provide the necessary protective measures and bill the Contractor for the cost. “Existing utilities” includes traffic control devices, conduits, streetlights, and related appurtenances.
6-16.03 **Exact Locations Unknown**

The locations of existing utility facilities shown on the Plans are approximate and represent the best information obtainable from utility maps and other information furnished by the various utility owners involved. The Owner warrants neither the accuracy nor the extent of actual installations as shown on the Plans. There may be additional utilities on the property unknown to either party to the Contract. If, during the course of the Work, additional subsurface utilities are discovered, the Owner may make adjustments to the Work. Compensation for such adjustments will be in accordance with Section 9, “Changes and Claims”, of these Specifications.

In accordance with Government Code Section 4215, the Owner will compensate the Contractor for the costs of locating, repairing damage not due to the failure of the Contractor to exercise reasonable care, removing, relocating or protecting existing main or trunk line utility facilities not indicated in the Plans and Specifications with reasonable accuracy, and for equipment on the Work necessarily idled during such work. In no event shall the Owner be liable for any further or additional costs resulting directly or indirectly from any such occurrence. Compensation will be in accordance with Section 9, “Changes and Claims”, of these Specifications. Nothing herein shall be deemed to require the Owner to indicate the presence of existing utility services, laterals, or appurtenances whenever their presence can be inferred from other visible facilities such as buildings, meters, junction boxes, valves, service facilities, identification markings, and other indicators on or adjacent to the Work.

If the Contractor discovers utilities not identified in the Plans or Specifications, the Contractor shall immediately notify the Owner and the utility owner by the most expeditious means available and later confirm the notification in writing. Upon receiving direction from the Owner, the Contractor shall proceed to relocate the utilities as directed. Nothing herein shall preclude the Owner from pursuing any appropriate remedy against the utility for delays that are the responsibility of the utility. The Contractor shall not be assessed liquidated damages for delay in completion of the Work for that portion of such delay as is caused by failure of the Owner or the owner of a utility to provide direction for the removal or relocation of existing utilities.

6-16.04 **Underground Service Alert (USA)**

Yuba County is a member of the Underground Service Alert North (U.S.A.) one-call program. Except in an emergency, the Contractor and any Subcontractor planning to conduct any excavation shall notify the U.S.A. at least four (4) Calendar Days, but no earlier than fourteen (14) Calendar Days, in advance of performing excavation work. U.S.A. can be reached by calling the toll free number -- 800-227-2600. U.S.A. does not accept emergency calls. The provisions of Government Code Section 4216 shall be followed.

Each phase of a project shall be called into U.S.A. and continuing excavation reported every fourteen (14) Calendar Days. The U.S.A. Regional Notification Center will provide an inquiry identification number to the person contacting the center. The U.S.A. inquiry identification number shall be available to the Inspector at the job site along with the date U.S.A. was called. If the U.S.A. notifications are not kept up-to-date, the excavation may be stopped and a new forty-eight (48) hour notice will be required before continuing the excavation. If, at any time during an excavation for which there is a valid inquiry identification number, the field markings are no longer reasonably visible, the Contractor shall contact the appropriate regional notification center to have the area re-marked.

Prior to calling U.S.A., the Contractor shall clearly mark the excavation site with white, water-soluble paint in paved areas or flags, stakes, whiskers, or some other approved method, in unpaved areas. This paint shall be applied as white dots located inside the excavated area so that when construction is completed there will be no remnants of the paint. Where the exact location of the excavation is not known, the Contractor shall make an attempt to closely identify and outline the areas to be explored. The Contractor shall determine the exact location twenty-
four inches (24") from outside edge on each side of the facility of utilities in conflict with the proposed excavation by exposing the subsurface installation with hand tools before using any power-operated or power-driven equipment. The Contractor shall not call in to U.S.A. the entire project boundaries or, on road construction projects, the entire length of the project. The Contractor shall only request the marking of facilities within the area to be excavated within fourteen (14) Calendar Days of the call.

6-16.05 Damage to Existing Utilities

The Contractor shall notify the affected utility of any contact, scrape, dent, nick, or damage to its facility. Any operator or excavator who negligently violates Government Code Section 4215 is subject to a civil penalty in an amount not to exceed ten thousand dollars ($10,000). Any operator or excavator who knowingly and willfully violates Government Code Section 4215 is subject to a civil penalty in an amount not to exceed fifty thousand dollars ($50,000).

6-16.06 Markings

The following table designates color codes and symbols that shall be used by the Contractor and the utility owners to identify utilities:

<table>
<thead>
<tr>
<th>FIELD MARKINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLOR CODES AND SYMBOLS</td>
</tr>
<tr>
<td>Color</td>
</tr>
<tr>
<td>Safety Precaution Blue</td>
</tr>
<tr>
<td>Safety Alert Orange</td>
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<td></td>
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<tr>
<td></td>
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<tr>
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<tr>
<td>Safety Green</td>
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<tr>
<td>Safety Red</td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td>High Visibility Safety Yellow</td>
</tr>
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<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Purple</td>
</tr>
</tbody>
</table>
6-17  APPROVAL OF CONTRACTOR’S PLANS NO RELEASE FROM LIABILITY

The review or approval by the Owner of any working drawing or any method of work proposed by the Contractor shall not relieve the Contractor of any of the Contractor’s responsibility for any errors and shall not be regarded as any assumption of risk or liability by the Owner or any officer, official, agent, employee, member, volunteer, affiliate, or their duly authorized representatives. The Contractor shall have no claim under the Contract because of the failure or partial failure or inefficiency of any reviewed or approved plan or method. Owner review or approval means that the Owner has no objection to the Contractor using the proposed plan or method at the Contractor’s responsibility and risk.

6-18  CONTRACTOR SHALL NOT MORTGAGE EQUIPMENT

The Contractor shall not mortgage or otherwise convey the title of the plant, machinery, tools, appliances, supplies, or materials that may at any time be in use, or further required or useful, in the prosecution of the Work, without prior written consent of the Owner.

6-19  PROPERTY RIGHTS IN MATERIALS

Nothing in the 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, and on which partial payments have been made by the Owner. All such materials shall be the property of the Contractor and the Owner jointly as their interests may appear, and shall not be removed from the Work by the Contractor without the Owner’s consent.

6-20  EXCAVATION AND TRENCH SAFETY

6-20.01  Permit

The Contractor must obtain a permit from the Division of Industrial Relations per Labor Code Section 6500, as specified in California Code of Regulations, Title 8, Article 6, Section 1539 “Permits” of the Construction Safety Orders, for all excavations five feet (5’) or deeper to which an employee or Owner person is required to descend. The permit shall be kept at the construction site at all times.

6-20.02  Shoring, Bracing, Shielding and Sheeting

In accordance with Labor Code Section 6705, at least seven (7) Calendar Days in advance of excavation of any trench or trenches five feet (5’) or more in depth, with a total value of twenty-five thousand dollars ($25,000) or more, the Contractor shall submit to the Owner a detailed plan showing the design of shoring, bracing, sloping, or other provisions for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan varies from the shoring system standards, the plan shall be prepared by a California registered civil or structural engineer. A signed copy of the detailed plan shall be on the site at the time of the excavation. Nothing in this Section shall be deemed to allow the use of a shoring, sloping, or protective system less effective than that required by the Construction Safety Orders. Nothing in this Section shall be construed to impose tort liability on the Owner or any of its employees. These systems must support the sides of the excavation and prevent soil movement that could
cause injury to any person or structure. Any damage resulting from a lack of adequate shoring, bracing, shielding or sheeting shall be repaired at the Contractor's expense.

The Contractor shall immediately replace or repair any unsafe ladder, scaffolding, shoring, or bracing, or correct any other dangerous or hazardous situation that exists.

A Competent Person, as defined in California Code of Regulations, Title 8, Construction Safety Orders, Section 1504, "Definitions", shall be on site at all times when the Contractor's employees are working within the trench. A "Competent Person" is one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

The price bid for work that will require an excavation of five feet (5') or deeper (or less if conditions warrant) shall include the cost of adequate sheeting, shoring and bracing, or equivalent method conforming to applicable safety orders, unless a separate bid item for such work is included in the bid form.

6-21 PRESERVATION OF PROPERTY

Roadside trees and shrubbery that are to remain, pole lines, fences, signs, traffic control devices, striping, survey markers and monuments, buildings and structures, conduits, under- or above-ground pipelines, and any other improvements and facilities shall be protected from injury or damage. If ordered by the Owner, 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, said objects shall be replaced or restored at the Contractor's expense to a condition as good as when the Contractor entered upon the Work. The Contractor shall receive Owner approval before the removal of any road sign or permanent traffic control device that interferes with the Work.

6-22 OVERLOADING

The Contractor shall determine safe loading capacities and shall not overload any structure, embankment, equipment, pavement, or material beyond its safe capacity, or significantly deteriorate the preconstruction condition, during construction. In addition to assuming full responsibility for bodily injury resulting from any such overloading, the Contractor shall repair to the Owner's satisfaction or reimburse the Owner for the costs of repairing the damage. For pavement assessment prior to construction, contact the Owner or the County Department of Transportation Maintenance Manager.
SECTION 7
PROSECUTION OF THE WORK

7-1 BEGINNING OF WORK

No work may take place prior to receipt of the executed Contract and review of the prescribed
bonds and insurance. Upon receipt of the executed Contract and approval of the bonds and
insurance by the Owner, a Notice to Proceed will be issued which will constitute authorization to
begin work.

The counting of Contract Time shall begin fifteen (15) Calendar Days from the time the Contractor
receives the Contract forms.

7-2 AMOUNT OF WORK UNDER CONSTRUCTION

The Contractor shall not have more work under construction than can be prosecuted properly
with regard to the rights of the public and the safety and integrity of the project.

7-3 PRECONSTRUCTION CONFERENCE AND PROGRESS MEETINGS

Prior to beginning work a preconstruction conference shall be held for the purpose of reviewing
the Work. The Contractor must attend this preconstruction conference, and shall invite
Subcontractors and others necessary to ensure all topics are adequately covered. Topics
discussed include, but are not limited to, mobilization, access, temporary facilities, utilities,
coordinating with landowners, subcontractors, schedules, procedures, correspondence, progress
payments, payroll records, Storm Water Pollution Prevention Plans (SWPPP), coordination,
safety, after-hour contacts for Contractor and Owner personnel, quality control/quality assurance,
personnel assignments, and other topics as appropriate.

Progress meetings, as stipulated in the Special Provisions or as required by the Owner, 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; the Contractor or the Contractor’s agent shall
attend. Topics discussed include, but are not limited to, progress, schedules, safety, SWPPP,
Requests for Information, Field Instructions, Change Orders, field coordination, submittals, quality
control/quality assurance, testing, startup, safety, and other topics related to the Work.

7-4 WORK TO BE PROSECUTED WITH ADEQUATE SUPERVISION, LABOR FORCE,
equipment and METHODS

The Contractor shall prosecute the Work under the Contract with all materials, tools, machinery,
apparatus, and labor necessary to complete the Work as described, shown, or reasonably implied
under the Contract, or as directed by the Owner, on or before the scheduled completion date.

7-4.01 Superintendence

The Contractor shall keep on the Work, throughout its progress, a competent superintendent who
shall have complete authority to represent and act for the Contractor. Such superintendent shall
be capable of reading and understanding the Contract, and shall receive and follow any
instruction given by the Owner. Within 5 working days after Notice to Proceed, Contractor shall
provide Owner with the name and qualifications of the superintendent. Owner may require
Contractor to provide a more qualified superintendent if the proposed superintendent does not
have successful experience on projects of similar type and size. Contractor shall not remove or
replace the designated superintendent without the written approval of Owner, which may not be
unreasonably withheld.
Whenever the Contractor or the Contractor’s 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 Owner and 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 Owner may stop the work until the Contractor or the Contractor’s superintendent arrives.

7-4.02 Labor

Workers, laborers, or mechanics skilled in each class of work shall accomplish every part of the Work.

7-4.03 Equipment and Methods

Only equipment and methods suitable to produce the quality required by the Contract will be permitted to operate on the Work. Except as specified in Section 5-7, “Contractor’s Equipment”, of these Specifications, or in the Special Provisions or the Technical Specifications, equipment shall be that used in general practice for the work undertaken. If any part of the Contractor’s plant, equipment, or methods of executing the Work is unsafe, inefficient, or inadequate to ensure the required quality or rate of progress of the Work, the Owner may order the Contractor to modify the Contractor’s facilities or methods. The Contractor shall promptly comply with such orders at the Contractor’s expense. However, neither compliance with such orders nor failure of the Owner to issue such orders shall relieve the Contractor from the obligation to secure the degree of safety, the quality of the Work, and the rate of progress required by the Contract. The Contractor is responsible for the safety, adequacy, and efficiency of his plant, equipment, and methods.

7-5 SCHEDULES

The Contractor shall submit a schedule within 15 Calendar Days after Notice to Proceed, in accordance with this Section 7 and Section 5-8, “Contractor’s Submittals”, of these Specifications, which illustrates the Contractor’s plans for carrying out the Work. The Owner will review the schedule, and any updates or revisions, for conformance to the Contract. Owner review of a schedule, update, or revision does not relieve the Contractor of responsibility for the feasibility of the schedule or requirements for accomplishments of milestones and completion within Contract Time, nor does the Owner review warrant or acknowledge the reasonableness of the schedule’s logic, durations, labor estimates, or equipment productivity.

If no separate item is provided in the Bid Form, payment for schedules shall be included in payments for mobilization. If no bid item for mobilization is included in the Bid Form, conformance with this provision is incidental to and included in the various bid items and no additional payment will be made. Updates and revisions of the schedules are included in the prices paid for other items of work.

The Owner may withhold twenty-five percent (25%) of the Progress Payment but not more than fifty thousand dollars ($50,000), whichever is greater, until a satisfactory baseline schedule, update, or revision has been submitted and reviewed.

7-5.01 Progress Schedule

A bar chart or similar form of progress schedule will be required for all contracts. Unless otherwise agreed to by the Owner, the latest version of MS Project shall be used. The Contractor shall submit three (3) copies, plus an electronic copy, of a complete baseline progress schedule at the preconstruction conference (see Section 7-3, “Preconstruction Conference and Progress Meetings”, in this Section of these Specifications). The baseline progress schedule shall show all major portions of the Work, the estimated dates on which the Contractor shall start each portion of the Work, and the contemplated dates for completing each portion of the Work or the
approximate percentage of the Work or portions of the Work scheduled for completion at any
time.

Unless agreed to by the Owner, the progress schedule shall be updated and submitted to the
Owner with each Progress Payment request or when requested by the Owner. All schedule
updates or revisions shall show the effects of any occurrence upon which the Contractor will base
a notice of potential claim or has based any claim (see Section 9, “Changes and Claims”, of these
Specifications), and shall expressly call the Owner’s attention to those effects. A revised or
updated schedule shall be submitted within fourteen (14) Calendar Days of an Owner request.

The Contractor shall carry out the various elements of the Work concurrently, as is practicable,
and shall not defer construction of any portion of the Work in favor of any other portion, without
the express written approval of the Owner.

Despite the submission of a progress schedule, the Contractor shall be governed by the direction
of the Owner if, in the judgment of the Owner, it becomes necessary to accelerate the Work or
any part thereof, or cease work at any particular point and concentrate the Contractor’s forces at
such other point or points, with the intent of preventing delays.

**7-5.02 CPM Schedule**

In addition to the initial progress schedule required by the previous Section (Section 7-5.01), the
Contractor shall submit a practicable Critical Path Method (CPM) network schedule, with the
native electronic file, within thirty (30) days of receipt of the Contract. Unless otherwise agreed to
by the Owner, the latest version of MS Project shall be used. The CPM network diagram shall be
time-scaled and include printouts showing the mathematical analysis of the CPM network
diagram. Activities shall include, but not be limited to, construction activities, procurement
activities, submittal activities, and any other activities by the Contractor, the Owner, or any other
entity that may impact the Work. Submittal and procurement activities shall include working
drawings, test procedures, mix designs, long time lead items, etc. The following information shall
be shown for each activity:

1. Unique number(s) for each activity
2. Activity description
3. Activity relationships and dependencies (logic)
4. Activity duration in working days
5. Early start, early finish, late start, late finish dates (calendar date, i.e. day, month, year)
6. Total float, free float
7. For completed activities: actual start dates, actual finish dates, duration, and logic
8. Interim milestone dates and completion dates
9. Detailed list of work contained within each activity
10. Manpower loading for each item of work for unit price contracts
11. Cost loading for each item of work for lump sum contracts

The Contractor shall submit three (3) full-size paper copies and an electronic copy of each CPM
schedule. Updates to the CPM schedule shall be submitted with each Progress Payment request,
when Contract events are changed, or within fourteen (14) Calendar Days of an Owner request. A narrative describing the general status of the Work and addressing any problem areas or delays shall be submitted with each revision or update, with impacts on critical path items of work highlighted. A corrective course of action shall also be included when problem areas or delays are encountered.

All schedule updates or revisions shall show on the critical path the effects of any occurrence upon which the Contractor has based a notice of potential claim or will base any claim (see Section 9, “Changes and Claims”, of these Specifications) and shall expressly call the Owner’s attention to the effects.

7-5.03 Four-Week Rolling Schedule

A four-week rolling schedule shall be provided by the Contractor at each progress meeting. The schedule shall provide an accurate representation of the work performed the previous week and work planned for the current week and the subsequent two (2) weeks.

The schedule shall be provided in a bar chart form with information derived from and consistent with the current project schedule. The schedule shall include activity ID number, activity description, start and finish dates (both scheduled and actual), and any other information requested by the Owner. Each activity shall be coded to note activities on the critical path and activities that are behind schedule.

7-6 UNUSUAL SITE CONDITIONS

The Contractor shall promptly, and before the following conditions are disturbed, notify the Owner, 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 in the Contract.

3. Unknown physical conditions at the site of any unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

The Contractor shall follow up the prompt notification with written documentation of the unusual site condition within seven (7) Calendar Days. The Owner will have the site remediated or issue a Contract Change Order per Section 9, “Changes and Claims”, of these Specifications if it finds that the conditions do materially differ or involve hazardous waste.

7-7 PURSUANCE OF WORK DURING INCLEMENT WEATHER

During inclement or unsuitable weather or other unfavorable conditions, the Contractor shall pursue only such portions of the Work that will not be damaged by the weather or unfavorable conditions. When the weather or unfavorable conditions creates hazardous travel or working conditions, as determined by the Owner, the Contractor may be directed to stop that portion of the Work, in accordance with Section 5-21, “Temporary Suspension or Delay of Work”, of these Specifications, until the weather clears or the conditions are no longer unfavorable.

The Contractor must keep roads safe and inspect and maintain stormwater pollution prevention and erosion control devices during inclement weather or unfavorable conditions. Lane and road
closures may not be allowed if the Owner determines that the traffic controls will create unnecessary risk to the traveling public, the Contractor, and/or Owner employees.

7-8  PEAK HOURS, HOURS OF DARKNESS, HOLIDAYS, AND WEEKENDS

7-8.01  Allowable Times and Hours of Work

Unless otherwise noted in the Special Provisions or approved by the Owner, no work shall be done between the hours of 6 p.m. and 7 a.m., or on Saturdays, Sundays, or legal holidays. Unless otherwise noted in the Special Provisions or approved by the Owner, no lane of traffic shall be closed to the public during the peak hours of 7:00 a.m. to 8:00 a.m. and 3:30 p.m. to 6:00 p.m., except as necessary for the proper care and protection of work already performed or in case of an emergency repair as defined below. These exceptions are allowed only with the Owner’s written permission.

7-8.02  Off-Period Work

A written request to work between 6 p.m. and 7 a.m. or on Saturdays, Sundays, or legal holidays, or to close a lane of traffic during peak hours must be submitted at least seven (7) Calendar Days in advance of the intended work. The Owner will evaluate the Contractor's request to determine if there is a benefit to the Owner, a nuisance or a hazard to the public, the project, or the area surrounding the site, and if the Contractor should pay any Owner overtime costs related to the off-period work. The Owner may place conditions on any approval of off-period work based on this analysis.

7-8.03  Emergency Repairs

An emergency repair is a repair to the Work (including traffic controls, barricades, or temporary signs) required as a result of an unforeseen event that poses a danger to the public or jeopardizes the integrity of the Work, whether completed or not. The Contractor may be allowed to close a lane of traffic or work at night, on Saturdays, Sundays, or legal holidays for an emergency repair. The Contractor must notify the Owner within one (1) hour of dispatch of the Contractor’s repair crews, and give their name, an emergency contact number, the location of the emergency repair, and a tentative completion date and time. The Contractor shall notify the Owner when the emergency repair is completed and the road is clear, or, if an extension of time is required, the Contractor must provide a revised tentative completion date and time.

7-8.04  Revocation of Permission For Off-Period Work

The Owner may revoke permission for off-period work if the Contractor endangers the public, an employee, or themselves by violating a safety and health regulation, or fails to maintain an adequate work force and equipment for reasonable prosecution and inspection of such work.

7-8.05  Working Shifts

Two- or three-shift operations may be established as a regular procedure by the Contractor upon written permission from the Owner. Such permission may be revoked if the Contractor fails to comply with applicable safety and health regulations, fails to maintain adequate force and equipment for reasonable prosecution and inspection of the Work, or fails to provide sufficient artificial light to permit the Work to be carried out safely and appropriately and to permit proper inspection.

7-8.06  Not Used
7-9  TEMPORARY FACILITIES AND SERVICES

Unless specified otherwise in the Special Provisions, the Contractor shall be responsible for providing and maintaining necessary material storage facilities, utilities, field offices, temporary roads, fences, security, etc. for prosecuting the Work.

7-10  PROTECTION OF WORK, PERSONS AND PROPERTY

The Contractor shall protect the Work and materials from damage until completion and acceptance of the Work. Neither the Owner nor any of its agents assume any responsibility for collecting funds from any person or persons that damages the Contractor’s work.

The Contractor shall store materials and equipment in accordance with manufacturer’s recommendations and erect such temporary structures as required to protect them from damage.

The Contractor shall furnish guards, fences, warning signs, walks, and lights, and shall take all other necessary precautions to prevent damage or injury to persons or property.

7-11  PROOF OF COMPLIANCE WITH CONTRACT

When requested by the Owner, the Contractor shall submit properly authenticated proof of the Contractor's compliance with the Contract.

7-12  DELAYS

The Contractor shall provide notification to the Owner for any delays, in accordance with Section 7-13, “Notice of Delays”, in this Section of these Specifications.

7-12.01  Avoidable Delays

The Contractor shall not receive any time extensions or compensation for avoidable delays. Avoidable delays include, but are not limited to, the following:

1. Delays that affect only a portion of the work but do not prevent or delay the prosecution of controlling items of work nor the completion of the whole Work within the Contract Time.

2. Delays associated with the reasonable interference of other contractors employed by the Owner that do not necessarily prevent or delay the prosecution of controlling items of work or the completion of the whole Work within the Contract Time.

3. Delays associated with loss of time resulting from the necessity of submitting plans for Owner approval or from Owner surveys, measurements, inspections, and testing.

4. Delays that could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or Subcontractors.

5. Any curtailment of the Contractor’s operations due to the action of the Feather River Air Quality Management District.

7-12.02  Unavoidable Delays

The Contractor may be granted an extension of Contract time for delays that are determined to be beyond the control of the Contractor, that lengthen the project critical path, and could not be prevented by the exercise of care, prudence, foresight, and diligence. Unavoidable delays may include Owner acts, acts of God or of the public enemy, fire, floods, epidemics, and strikes.
Material shortages and delays in utility company relocations may be classified as unavoidable if the Contractor produces satisfactory evidence of acting in a timely manner.

1. The Contractor shall not receive any additional compensation due to inclement or unsuitable weather or conditions resulting therefrom, acts of God or of the public enemy, fire, floods, epidemics, strikes, material shortages, or utility relocations.

2. The Contractor may be entitled to additional compensation for unavoidable delays the Owner determined resulted from an Owner act or the discovery of cultural resources as specified in Section 10-12, “Archeological and Cultural Resources”, of these Specifications, except as modified below:

   a. Compensation for unavoidable delays shall not be granted when the Contractor could have reasonably anticipated the delay.

   b. When there are two (2) or more concurrent delays and at least one (1) is 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 that would prevent completion of the Work.

7-13 NOTICE OF DELAYS

The Contractor shall immediately notify the Owner in writing if the Contractor foresees any delay in the prosecution of the Work or immediately upon the occurrence of any unavoidable delay, but in no case shall the written notice be provided to the Owner later than five (5) Calendar Days after the occurrence of the unavoidable delay. The Contractor shall state the probability of the delay occurring and its cause so the Owner may take steps to prevent the occurrence or continuance of the delay and determine whether the delay is avoidable or unavoidable, its duration, and the extent. Failure to provide notice of delay, as required by this section, waives any right to a contract extension or any additional compensation due to the alleged delay.

All delays are conclusively presumed to be avoidable unless the Owner was notified as indicated above and through its investigation found them unavoidable. No consideration for additional time or compensation will be given for any delay not called to the Owner’s attention at the time of its occurrence.

7-14 CARELESS DESTRUCTION OF STAKES AND MARKS NO CAUSE FOR DELAY

If the Contractor or Subcontractors carelessly destroy Owner-placed benchmarks and elevation reference points causing a delay in the Work, the Contractor shall have no claim for damages or time extensions. See also Section 5-9, “Surveys”, of these Specifications.

7-15 TIME OF COMPLETION

Time is of the essence on all Owner contracts. The Contractor shall complete all of the Work called for under the Contract within the Contract Time set forth in the Special Provisions.

The Owner will furnish the Contractor a weekly statement showing the number of days charged to the Contract for the preceding week, the number of days of time extensions approved or under consideration, the number of days originally specified for the completion of the Contract, and the extended date for completion. The Contractor will be allowed fifteen (15) Calendar Days from the issuance of the weekly statement to file a written protest stating how the Contractor’s estimate of Contract days charged to the Contract differs from the Owner’s. If no protest is received, it shall be deemed by the Owner that the Contractor has accepted the statement as being correct.
7-16 EXTENSION OF TIME NOT A WAIVER

Time extensions granted for unavoidable delays or for the execution of extra or additional work shall not operate as a waiver of the Owner’s rights under the Contract.

7-17 INCLEMENT WEATHER AND CONTRACT TIME

A Contract day will not be charged if, in the opinion of the Owner, inclement or unsuitable weather or its effects prevents working on the current controlling operation at the beginning of the shift for at least five (5) consecutive hours, or for at least (5) hours during the shift. A current controlling operation is any feature of the Work (e.g., an operation or activity including settlement, curing periods, and submittal activities) that if delayed or prolonged will delay the time of completion of the Contract.

7-18 EXTENSION OF TIME

The Contractor will be allowed a time extension to complete the Work equal to the sum of all unavoidable delays as determined in accordance with Section 7-12.02, “Unavoidable Delays”, in this Section of these Specifications, plus any adjustments in Contract Time due to Contract Change Orders as outlined in Section 9-12, “Time Extensions for Changes”, in these Specifications. During such time extension, the Contractor will not be charged for extra engineering and inspection or liquidated damages. Requests for a time extension must be submitted in writing to the Owner within ten (10) Calendar Days of the event that is the reason for the request for time extension and before the expiration of the Contract time.

7-19 SUBSTANTIAL COMPLETION

When the Contractor considers the entire Work, or a specific portion of the Work, substantially complete, the Contractor shall certify in writing to the Owner that the Work is substantially complete and request that the Owner grant substantial completion. Within seven (7) Calendar Days, the Owner and the Contractor shall inspect the Work to determine the status of completion. If the Owner does not consider the Work ready for its intended use, the Owner will notify the Contractor in writing, giving the Owner’s reasons. If the Owner considers the Work ready for its intended use, the Owner will grant substantial completion. The Owner will provide a list of items to be completed or corrected (punch list) before Final Acceptance and Final Payment. Within ten (10) Calendar 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 Owner to formal acceptance nor relieve the Contractor from the responsibility of completing or correcting any work.

7-20 CLEANING UP

Throughout the construction period, the Contractor shall keep the site of the Work in a presentable condition, dispose of any surplus materials, keep roadways reasonably clear of dirt and debris, keep all sidewalk and other pedestrian areas clear of dirt, loose gravel, debris and any tripping hazards, remove ruts, grade surfaces to a smooth condition, install erosion protection measures, 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 Owner. The Contractor shall also keep the work site cleaned of all rubbish, excess material, and equipment. All portions of the work shall be left in a neat and orderly condition prior to requesting final inspection. Surplus material shall be disposed of in accordance with the relevant technical provision of these Specifications.

The final inspection will not be made until final clean up has been accomplished.
7-21 FINAL INSPECTION AND FIELD ACCEPTANCE

The Contractor shall notify the Owner in writing of the completion of the Work, and the Owner 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) Calendar Days of such notification. When notified that correction of the defective or deficient work is complete, the Owner will again inspect the Work to ascertain that the corrections are in accordance with the Contract. The Owner will issue a field acceptance letter. Field acceptance by the Owner shall cause the commencement of warranty periods, but shall not bind the Owner to final acceptance nor relieve the Contractor from the responsibility of completing or correcting any work.

7-22 FINAL ACCEPTANCE AND NOTICE OF COMPLETION

Upon completion of the Work, including acceptance of M&O manuals, Record Drawings, and test reports, the Owner will recommend to the Board that it consider to accept the Contract as complete. Upon acceptance by the Board, a Notice of Completion will be filed with the County Recorder and a thirty-five (35) Calendar Day lien period begins. (See Section 8-11, "Final Estimate and Payment", of these Specifications.)
SECTION 8
MEASUREMENT AND PAYMENT

8-1 BASIS AND MEASUREMENT OF PAYMENT QUANTITIES

It is the Contractor’s responsibility to measure and/or compute the quantities of work completed, subject to verification by the Owner, under the terms of the Contract. In computing quantities, the length, area, solid contents, number, weight, or time as specified in the Contract or the Schedule of Values shall be used.

8-1.01 Unit Price Contracts

Payment for all work bid at a price per unit of measurement will be based upon the actual quantities of work as measured upon completion. The Estimated Quantities provided in the Bid Documents are for comparative bidding only. The Owner does not express or imply that the actual amount of work or materials will correspond to the Estimated Quantities. The Contractor shall make no claim nor receive any compensation for anticipated profits, loss of profit, damages, or any extra payment due to any difference between the amount of work actually completed, or materials or equipment furnished, and the Estimated Quantities. See also Section 9-14, “Contract Change Order (CCO)”, of these Specifications.

8-1.02 Lump Sum or Job Contracts

Progress Payments will be based on the Schedule of Values prepared by the Contractor and approved by the Owner prior to acceptance of the first Progress Payment request (see Section 8-5, “Progress Payment Procedures”, in this Section of these Specifications). If requested by the Owner, the Contractor shall furnish full copies of Subcontracts showing actual costs. The Schedule of Values shall be consistent with the baseline progress schedule prepared by the Contractor pursuant to Section 7-5.01, “Progress Schedule”, of these Specifications.

8-1.03 Payment for Mobilization

Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the site; for the establishment of all offices, buildings, and other facilities necessary for the Work; and for all other work and operations which must be performed, or costs incurred, prior to beginning the Work.

Payment for mobilization will be as follows:

8-1.03.A Mobilization Not a Pay Item

When the Contract does not include a separate pay item for mobilization, full compensation for mobilization will be included in the Contract lump sum price or in the prices paid for the various items of work in a unit price contract, and no additional compensation will be paid.

8-1.03.B Mobilization a Pay Item

When the Contract or proposed Schedule of Values includes a separate item for mobilization, payment for mobilization will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for mobilization.

1. The Owner will pay no greater than five percent (5%) of the Total Contract Price as a separate pay item for mobilization. In the event the Contractor submits a mobilization pay item greater than five percent (5%) of the Total Contract Price, the Owner will pay any excess mobilization amount with the final Progress Payment.

2. Payment for mobilization will be prorated as follows:

a. When the Progress Payment request is five percent (5%) or more of the original Total Contract Price (excluding mobilization), fifty percent (50%) of the contract item price for
mobilization or two and one-half percent (2.5%) of the Total Contract Price, whichever is less, will be paid for mobilization.

b. When the Progress Payment request is ten percent (10%) or more of the original Total Contract Price (excluding mobilization), seventy percent (70%) of the contract item price for mobilization or three and one-half percent (3.5%) of the Total Contract Price, whichever is less, will be paid for mobilization.

c. When the Progress Payment request is twenty percent (20%) or more of the original Total Contract Price (excluding mobilization), ninety percent (90%) of the contract item price for mobilization or four and one-half percent (4.5%) of the Total Contract Price, whichever is less, will be paid for mobilization.

d. When the Progress Payment request is fifty percent (50%) or more of the original Total Contract Price (excluding mobilization), one hundred percent (100%) of the contract item price for mobilization or five percent (5%) of the Total Contract Price, whichever is less, will be paid for mobilization.

e. After final acceptance of the Contract, the amount, if any, of the Contract item price for mobilization in excess of five percent (5%) of the original Total Contract Price will be included for payment in the final estimate made in accordance with Section 8-11, “Final Estimate and Payment”, in this Section of these Specifications.

3. The Owner will not pay additional mobilization compensation for work under a Contract Change Order. Payment for mobilization shall be subject to retention per Section 8-7, “Retention”, in this Section of these Specifications.

8-2 SCOPE OF PAYMENT

8-2.01 General
Compensation under the terms of the Contract shall be full payment for the Work, including loss or damage arising from the nature of the Work, action of the elements, or unforeseen difficulties encountered during the prosecution of the Work and until its final acceptance; and all risks connected with the prosecution of the Work.

8-2.02 Unit Price Contract
Progress Payments will be made based on the unit price bid and measured quantities for work completed, plus work completed on approved Change Orders. For compensation for alterations in quantities of work, including deviations greater than twenty-five percent (25%), see Section 9-8.02, “Payment for Changes – Unit Prices”, in these Specifications.

8-2.03 Lump Sum or Job Contract
Progress Payments will be based on the approved Schedule of Values for work completed, plus work completed on approved Change Orders.

8-2.04 Final Pay Items
An item designated as a Final Pay Item in the Contract shall be paid for as specified in Section 9-1.015, “Final Pay Items”, of the State Specifications.

8-2.05 Allowances
Allowances may be included in the Bid Form for materials and/or work that may be added during the course of the Contract. The Allowance may be used in whole, in part, or not at all as determined by the Owner. Whenever costs of the Work included in the Allowance item are more or less than the specified Allowance amount, the Total Contract Price will be adjusted accordingly by Contract Change Order. The Contractor shall make no claim nor receive any compensation for anticipated profits, loss of profit, damages, or any extra payment due to any difference between the amount of work actually completed, or materials or equipment furnished, and the Estimated Quantities for the Allowance.
8-2.06 Payment for Material Not Incorporated in the Work

No Progress Payments will be made for materials and equipment not incorporated in the Work, unless specifically set forth in the Special Provisions or authorized by the Owner.

8-3 WORK TO BE DONE WITHOUT DIRECT PAYMENT

Compensation for any portion of the Work not specifically identified in the Bid Form or Schedule of Values is understood to be included in the price for other items, unless specified in the Special Provisions as extra work. No additional compensation is allowed for additional shifts or premium pay necessary to ensure that the Work is completed within the time limits specified in the Contract.

8-4 PAYMENT FOR USE OF COMPLETED PORTIONS OF WORK

If the Owner accepts a completed or partially completed portion of the Work under Section 4-10, “Use of Completed Portions”, of these Specifications, the Contractor will be compensated in accordance with Sections 8-11, “Final Estimate and Payment”, and 8-12, “Final Payment to Terminate Liability of Owner”, in this Section of these Specifications. When the Owner accepts a completed or partially completed portion of the Work, the warranty period for that portion commences and the Contractor will be relieved of any further maintenance and protection of that portion. The Contractor will not be relieved of the Contract requirements for repairing or replacing defective work and materials.

8-5 PROGRESS PAYMENT PROCEDURES

No Progress Payment will be made when, in the judgment of the Owner, the Work is not proceeding in accordance with the provisions of the Contract or when the total work done since the last Progress Payment amounts to less than one thousand dollars ($1,000). Unless otherwise agreed to at the preconstruction meeting or identified in the Special Provisions, on the 20th of each month the Contractor shall submit in writing for Owner review an estimate of the total amount and value of work done, including that done under approved Change Orders, and the acceptable materials furnished and incorporated in the work through the 20th day of the month. The Bid Form or Schedule of Values shall be used to prepare a Progress Payment request for the items, or portions of items, of the Work completed during the monthly progress period. After deducting all previous payments, the retention as described in Section 8-7, “Retention”, in this Section of these Specifications, and other withholdings as specified in the Contract from the estimated total value, the Owner will pay the Contractor the balance.

Each progress payment shall be accompanied by schedule updates, certified payroll and other pay records if requested by the Owner, record drawing update confirmations, a conditional lien release in the form prescribed by law warranting that title to all work, labor, materials and equipment covered by the request is free and clear of all liens, claims, security interests or encumbrances and an unconditional lien releases for all work through the prior progress payment lien releases. Failure to provide these documents may result in the withholding of some or all of a progress payment.

The payment of a Progress Payment or the acceptance thereof by the Contractor does not constitute acceptance of any portion of the Work, and does not reduce the Contractor’s liability to replace unsatisfactory work, material, or equipment. An inadvertence or error in an approved Progress Payment request will not release the Contractor or the Contractor’s surety from damages arising from the work covered by the approved payment request or from enforcement of every provision of the Contract. The Owner has the right to correct any error made in any Progress Payment.
8-6 INSPECTION AND PROGRESS PAYMENTS NOT A WAIVER OF CONTRACT PROVISIONS

No inspection, order, measurement, approval modification, payment, acceptance of work or material (including, but not limited to, acceptance of the entire Work), time extension, or possession of the Work or any part thereof shall be a waiver of any of the terms and conditions of the Contract, the powers reserved by the Owner, or any right of the Owner to damages or to reject the Work in whole or part. No breach of this Contract shall be construed a waiver of any other or subsequent breach. All remedies provided in the Contract shall be cumulative and shall be in addition to all other rights and remedies that may exist at law or in equity.

8-7 RETENTION

8-7.01 Retention to Ensure Performance

As described in Section 8-11, “Final Estimate and Payment”, in this Section of these Specifications, the Owner will retain ten percent (10%) of each Progress Payment to ensure performance under the Contract until thirty-five (35) days after filing of the Notice of Completion.

8-7.02 Non-Compliance

The Owner may also retain portions of a Progress or Final Payment for Contract noncompliance in an amount deemed appropriate by the Owner.

8-7.03 Substitution of Securities

At the request and expense of the Contractor, in accordance with California Public Contract Code Section 22300, in lieu of the Owner withholding the ten percent (10%) retention defined in Section 8-7.01, “Retention to Ensure Performance”, in this Section of these Specifications, the Contractor may: 1) substitute a deposit of securities at least equivalent to the retention to be paid, or 2) request the Owner pay retention directly to an escrow agent.

The Contractor and Owner shall enter an escrow agreement in the exact form set forth in Public Contract Code Section 22300.

8-8 WITHHOLDINGS/DENIAL OF PROGRESS PAYMENT REQUEST

The Owner may deny a Progress Payment request and/or withhold money from any Progress Payment to:

- Cover any unpaid claims filed pursuant to Civil Code Sections 9350 et seq.;
- Protect the Owner’s interest; and/or
- Pay any fines levied against the Work by the Owner or other entities.

The Owner may also deny a Progress Payment request and/or withhold money, or modify any previous Progress Payment, as necessary to protect the Owner from loss due to or affecting enforcement of:

- Defective work not remedied.
- Stop notices filed.
- Failure of the Contractor to make payments properly to Subcontractors for labor, materials, or equipment.
- Evidence that the Work cannot be completed for the unpaid balance of the Contract sum.
- Evidence that the Work will not be completed within the Contract time.
- Damage to the Owner or another contractor.
- Failure to carry out the Work in accordance with the Contract.
• Any violation or non-compliance with Contractor’s legal responsibilities (see Section 6, “Legal Relations and Responsibilities”, of these Specifications), including withholds for wages adjustments in accordance with California Labor Code Section 1727 and any fines incurred by the Owner as a result of the Contractor’s actions.

When, under the provisions of the Contract, the Owner charges any sum of money against the Contractor, the Owner will deduct and retain the amount of such charge from a Progress or Final Payment. If, on completion or termination of the Contract, sums due the Contractor are insufficient to pay the Owner charges against the Contractor, the Owner has the right to recover the balance from the Contractor or the Contractor’s surety.

8-9 DEDUCTIONS FOR IMPERFECT WORK

For any portion of the Work retained in accordance with Section 5-19, “Right to Retain Imperfect Work”, of these Specifications, the Owner will deduct from a Progress Payment a just and reasonable amount.

8-10 LIQUIDATED DAMAGES FOR DELAY

All parties to the Contract agree that time is of the essence, and that the Work shall be completed within the time stated in the Special Provisions, plus any time extensions as provided in Section 7-18, “Extension of Time”, of these Specifications. The Contractor’s failure to complete the Work within the time allowed will result in damages to the Owner. Because it is impracticable to determine the actual amount of damage by reason of such delay, the Contractor agrees that the sum(s) set forth in the Special Provisions is (are) a reasonable amount to be charged for liquidated damages. It is agreed that the Contractor shall pay to the Owner the sum set forth in the Special Provisions for each and every day’s delay beyond the time prescribed in the Contract, and the Contractor further agrees that the Owner may deduct and retain the amount thereof from any monies due or to become due the Contractor under the Contract.

8-11 FINAL ESTIMATE AND PAYMENT

Subsequent to Field Acceptance as detailed in Section 7-21, “Final Inspection and Field Acceptance”, of these Specifications, the Contractor shall provide a proposed Final Payment request, segregated as to Contract item and Contract Change Order work.

For final payment, the Contractor and all of its Subcontractors and material suppliers shall submit final conditional and final unconditional lien releases in the form prescribed by law.

The Owner will review the proposed Final Payment request and, after deducting all previous payments and all amounts to be deducted, withheld, and/or retained under the provisions of the Contract and Public Contract Code Section 7107, shall create the Final Payment request. All Progress Payments shall be subject to correction in the Final Payment.

Within fifteen (15) Calendar Days after the proposed Final Payment request is returned to the Contractor, the Contractor shall submit to the Owner a written approval of said request or a written statement of exceptions. The Contractor’s statement of exceptions shall be in sufficient detail for the Owner to ascertain the basis and amount of the exceptions; failure to provide the detail shall be sufficient cause for denial of the exceptions. Any claim of the Contractor or the Contractor’s Subcontractors or suppliers with respect to the performance or breach of the Contract or any alterations thereof (except for payment of the balance of the Contract price as set forth in the Final Payment request) not specifically set forth in the statement of exceptions, is waived by the Contractor. If the Contractor fails to file a statement of exceptions within the time allowed, the Owner will infer acceptance of the final Progress Payment request as submitted to the Contractor.

If no liens or claims have been filed against the Contractor after thirty-five (35) days from the filing of Notice of Completion, the Owner will approve for payment the entire sum due, including the release of any retention.
8-12  FINAL PAYMENT TO TERMINATE LIABILITY OF OWNER

Payment of the final amount due under the Contract shall release the Owner, and the Owner’s officers, officials, agents, employees, members, volunteers, affiliates, Consulting Engineer, and their duly authorized representatives from all claims or liability on account of work performed under the Contract. Tender of this payment shall constitute denial by the Owner of any unresolved claim of the Contractor not specifically excepted in writing by the Contractor. The Contractor’s acceptance of the Final Payment shall release the Owner and the Owner’s officers, officials, agents, employees, members, volunteers, affiliates, engineering consultants, and their duly authorized representatives from all claims or liability on account of work performed under the Contract or any alterations thereof, except unresolved items set forth in the statement of exceptions.

8-13  DISPUTED PAYMENTS

The Owner will decide disputes regarding payments under the Contract according to the procedures set forth in Section 9, “Changes and Claims”, of these Specifications. The decision of the Owner will be final.

8-14  SOLE SOURCE OF PAYMENT

The sole source of payment for this contract is funding by the State of California and local landowners with property located within Reclamation District 784. Failure of either party to provide the needed funding during the life cycle of this project could result in a delay in the notice to proceed, delay in portions of the work, or termination of the contract for convenience by TRLIA.
SECTION 9
CHANGES AND CLAIMS

9-1 AUTHORITY FOR CHANGES
The Owner reserves the right to order corrections, alterations, additions, modifications, deletions or other changes as required for the proper completion of the Work. The order may be made prior to the final acceptance of the Contract without voiding the Contract, without notice to the Contractor’s sureties, and in accordance with the provisions of Section 9-2, “Ordering of Changes”, in this Section of these Specifications.

The Contractor shall not perform corrections, alterations, additions, modifications, deletions, or other changes to the Work without a written order from the Owner, in accordance with Section 9-2, “Ordering of Changes”, in this Section of these Specifications.

Payment for changed or extra work will not be made without the Owner's written authorization.

9-2 ORDERING OF CHANGES
The Owner may order a change, in writing, during the course of the Work, and the Contractor shall comply with the order. Changes to the Work shall in no way affect, vitiate, or make void the Contract or any part thereof, except that which is necessarily affected by such changes and is clearly the evident intention of the parties to the Contract.

Changes to the Work may be initiated as described in Section 4-5, “Field Instructions or Other Written Directives”, of these Specifications. Changes that require an adjustment to the total Contract Price or the Contract Time will be formalized in a Contract Change Order, in accordance with Section 9-14, “Contract Change Order (CCO)”, in this Section of these Specifications. Failure of the Owner and Contractor to agree to terms of any order for change shall not relieve the Contractor of his obligation to complete all work specified in the order.

9-3 CONSTRUCTION INCENTIVE CHANGE PROPOSAL (CICP)
9-3.01 General
The Construction Incentive Change Proposal (CICP) Program provides a program for the Contractor to use his expertise to improve Contract performance to create an overall reduction in the Total Contract Price. Proposing to delete work is not a CICP. Deleted work is addressed in Section 4-8, “Deleted Items”, in these Specifications. The CICP Program shall not apply to Owner contracts of less than one hundred thousand dollars ($100,000). The Contractor and Subcontractors may participate in the CICP Program. Participation of Subcontractors shall be through the Contractor, and the Contractor and his Subcontractor must agree upon the sharing arrangement; written evidence of such agreement must be submitted with the CICP.

While a CICP is being considered or processed, the Contractor shall proceed with the Work as scheduled.

9-3.02 Description
A CICP is a formally written proposal for a Contract Change Order. A CICP must be initiated, developed, and identified as such by the Contractor or his Subcontractor. A CICP must result in a net capital cost reduction while causing no increase in the total life cycle cost of the project and shall comply with the following conditions:

- Required function, reliability, and safety of the project will be maintained without detracting from the life expectancy or increasing maintenance requirements.
- The proposed change shall not cause undue interruption of the Work, nor shall it extend the Contract Time.
- The proposed change shall comply with all applicable permits, regulations, and code requirements, and any other requirements as set forth in the Contract. The
proposed change shall not involve payment of royalties by the Owner to the Contractor.

9-3.03 **Submittal**

The Contractor shall submit a brief description of the proposed CICP prior to preparing the detailed submittal as outlined below.

A CICP submittal must contain pertinent information in supporting documents for Owner evaluation. As a minimum, the following information shall be submitted:

1. Name of individuals associated with the development and preparation of the CICP.
2. A detailed description and duly signed plans and specifications showing work as presently designed and the proposed changes.
3. A clear identification of all advantages and disadvantages for each proposed change.
4. A detailed procedure and schedule for implementing the proposed change. This detailed procedure and schedule shall include all necessary Contract amendments. Also indicated must be the latest date that the CICP can be approved for implementation.
5. A summary of estimated costs, including the following:
   a. Project construction costs before and after the CICP. This shall be a detailed estimate identifying the following items for each trade involved in the CICP:
      - Quantities of material and equipment
      - Unit prices of materials and equipment
      - Labor hours and rates for installation
      - Subcontractor and prime Contractor mark ups
      - Operation and maintenance costs before and after the CICP
      - Cost for implementing the CICP not included elsewhere
   b. Contractor's share of the savings based on the sharing provision in Section 9-3.05, “Sharing Provisions and Formula”, in this Section of these Specifications.
   c. Other data as required by local permits and regulations and code requirements as set forth in the Contract.
6. Time required for execution of the proposed change.

The Owner may modify, accept, or reject the CICP. Under no circumstances, however will the Owner be liable for the Contractor's cost of developing the CICP.

9-3.04 **Acceptance**

The Owner will use the processing procedure specified for Change Orders in Section 9-14, “Contract Change Order (CCO)”, in this Section of these Specifications, if a CICP is accepted. The Owner’s written approval of the CICP is required. If the CICP is rejected, the Contractor shall not appeal the decision.

9-3.05 **Sharing Provisions and Formula**

Upon acceptance of the CICP, the Contractor will receive fifty percent (50%) of the Net Capital Savings based on the following formula:

Net Capital Savings = Contract Cost Prior to CICP - (Revised Contract Cost After CICP + CICP Development Cost + CICP Implementation Cost)
The Contractor's development cost is limited to that directly associated with the preparation of the CICP package. Development costs will be reimbursed after approval. However, the Owner will reject costs that cannot be satisfactorily substantiated.

The CICP implementation costs include, when appropriate, engineering costs for reviewing and redesigning the changes. However, Owner costs for processing the CICP are excluded.

9-4 CHANGES TO THE CONTRACT

If directed by the Owner, within fourteen (14) Calendar Days of issuance of an order for a change, the Contractor shall provide a cost and time proposal prepared in accordance with the requirements of Sections 9-8, “Payment for Changes”, and 9-12, “Time Extensions for Changes”, in this Section of these Specifications. The Contractor’s proposal shall indicate the amount to be added or deducted from the Total Contract Price, supported by complete details of all Contractor, Subcontractor, vendor or supplier costs per Section 9-6, “Cost and Pricing Data”, in this Section of these Specifications.

If the Contractor does not submit a proposal within fourteen (14) Calendar Days, and unless the Owner is otherwise notified within fourteen (14) Calendar Days of a potential cost impact, the Contractor agrees to perform the work described in the order for change with no additional compensation. If the order for change is issued on a force account basis, the Contractor must immediately begin keeping records in accordance with Section 9-8.03, “Force Account”, in this Section of these Specifications.

9-5 PROSECUTION OF CHANGES TO THE CONTRACT

The Contractor shall comply with and prosecute all portions of the order for change with the same diligence and manner as if the changes were originally included in the Contract, except as otherwise provided in the order.

If agreement is reached regarding payment, but not a time adjustment, the Owner shall have the right to direct the Contractor to proceed with the change at the agreed price. The impact of the changed work on the project schedule will be considered by the Owner in accordance with Section 9-12, “Time Extensions for Changes”, in this Section of these Specifications.

When the Owner and Contractor cannot agree on the credit for deleted work, the Owner’s estimate will be deducted from the Total Contract Price, unless the Contractor presents proof prior to the Final Payment that the Owner’s estimate is in error.

9-6 COST AND PRICING DATA

Cost and pricing data submitted by the Contractor shall be true, complete, accurate, and current. The Owner may require a formal certification to verify Contractor-submitted cost and pricing data. Additional requirements for cost and pricing data may also be included in the Special Provisions. The Owner shall have access to the records supporting such cost and pricing data in accordance with the following Section (Section 9-7, “Access to Records”).

9-7 ACCESS TO RECORDS

Upon reasonable notice and during normal business hours, the Owner shall have access to the Contractor’s and Subcontractors’ records for the purpose of verifying and evaluating the accuracy of cost and pricing data submitted by the Contractor. “Records” as used in this Section shall include, but not be limited to: original estimates, subcontract agreements, purchase orders, books, documents, accounting records, papers, project correspondence, project files, and scheduling information necessary to determine the direct and indirect costs, job site, area and home office overhead, delay and impact costs. Records shall include the original Bid and all documents related to the Bid and its preparation, the as-planned construction schedule and all related documents. Such access shall include the right to examine and audit such records and make excerpts, transcriptions, and photocopies at the Owner’s cost.
9-8 PAYMENT FOR CHANGES

The method of payment agreed upon by the Contractor and the Owner, or selected by the Owner in the absence of agreement, shall be set forth in the order for change.

The three methods of payment are as follows:

9-8.01 Lump Sum Price

The Contractor shall submit a lump sum price proposal. The proposal shall include an estimate of labor, material, equipment, Subcontractor, and material supplier costs. The proposal shall include labor surcharges of twenty-six percent (26%), sales tax, and markups as stipulated in Section 9-9, “Markups for Changed Work”, in this Section of these Specifications.

9-8.02 Unit Prices

If payment for Contract work is based on unit prices, payment for changed work will be made based on actual quantities of work done at the unit prices contained in the Contract or unit prices otherwise agreed upon by the Owner and Contractor if none are contained in the Contract. Payment for changed work based on Contract or agreed upon unit prices includes the full cost of the item of work including profit and overhead; and no additional payment or adjustment will be allowed. If the final quantity of any item of work required under the Contract varies from the Engineer’s Estimate by twenty-five percent (25%) or more, compensation will be adjusted in accordance with State Specification Section 4-1.03B, “Increased or Decreased Quantities”.

9-8.03 Force Account

In the absence of either an agreed lump sum price or unit prices for the change, the Owner may direct the Contractor to proceed with the changed work on a force account basis. The Contractor shall keep and present, in a form acceptable to the Owner, a complete and correct accounting of all costs associated with the change, including all pay records, vouchers, invoices, etc. The Contractor will be paid for labor, materials, and equipment actually used during the performance of the changed work as specified in this Section of these Specifications in Sections 9-8.03.A, “Labor”, 9-8.03.B, “Materials”, and 9-8.03.C, “Equipment”; plus the percentages stipulated in Section 9-9, “Markups for Changed Work”.

To facilitate agreement on direct craft labor hours, construction equipment hours, and material quantities, the Contractor shall notify the Owner not less than four (4) hours prior to starting force account work. The Contractor shall submit Daily Work Reports (DWR’s) for signature not later than 9:00 a.m. the day following performance of any force account work. DWR’s shall list names of all Contractor’s staff, the staff person’s craft or trade, all craft or trade labor hours, and all material and construction equipment used. The Contractor shall use the Owner’s DWR’s in preparing billings for force account work.

9-8.03.A Labor

The Contractor will be paid the cost of direct labor (foreperson and below) used in the actual and direct performance of the changed work including working foreman when authorized by the Owner. Except as otherwise provided, the Contractor will receive no additional compensation for overtime work without prior written authorization from the Owner. The cost of labor will be the sum of the following:

9-8.03.A(1) Actual Wages

Charges for labor will be the Contractor’s actual payroll costs for labor of any classification, including employer payments to or on behalf of the workers for health and welfare, pension, vacation, and similar purposes.
9-8.03.A(2) Subsistence and Travel

The Owner will pay the Contractor for actual subsistence and travel allowance costs associated with the changed work required by labor agreements or acceptable to the Owner. Documentation must be provided to the Owner.

9-8.03.B Materials

Payment will be for the purchaser’s actual cost of supplier or vendor furnished materials. If the Contractor does not furnish satisfactory evidence of the cost of such materials, the cost will be the lowest current wholesale price at which such quantities of materials are available and delivered to the job site. The Owner reserves the right to purchase materials for the changed work; the Contractor shall have no claims for costs or profit on such materials.

9-8.03.C Equipment

The prices paid for equipment directly and solely required for performance of the changed work will be those listed in the current edition of the Caltrans publication, “Labor Surcharge and Equipment Rental Rates”. If the equipment is not shown in this publication, the Contractor shall be paid such hourly rental rates as are agreed upon by the Contractor and the Owner prior to use of the equipment, plus thirty-three and one-third percent (33-1/3%) for the cost of fuel, oil, lubrication, and field repairs and maintenance. In no case shall the hourly rental rates exceed those of established distributors or equipment rental agencies serving the area.

The rate paid for the use of equipment constitutes full compensation to the Contractor for all costs, including fuel, power, oil, lubrication, supplies, small tools, small equipment, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, labor (except for equipment operators) and any and all costs to the Contractor incidental to the use of such equipment for the changed work.

Payment will not be made for the equipment while it is inoperative due to breakdowns or for time in which no changed work was performed. Payment for rentals will include time required to move equipment to the changed work from the nearest available rental source and to return it to the source. However, no moving, loading, or transportation costs will be paid if the equipment is used for any other portion of the Work.

Individual pieces of equipment having replacement value of five hundred dollars ($500) or less shall be considered tools or small equipment and no payment will be made for those pieces of equipment.

9-8.03.D Subcontracts

Subcontract costs shall be the actual cost to the Contractor for work performed by a Subcontractor. The provisions of Section 9-8.03, “Force Account”, in this Section of these Specifications, apply to the computation of subcontract costs. Subcontractors shall compute markups per the following Section (Section 9-9, “Markups for Changed Work”).

9-9 MARKUPS FOR CHANGED WORK

Only the direct costs directly attributable to the performance of the changed work shall be allowed. All other costs shall be included in the allowed markups, including, but not limited to, profit, home office overhead, jobsite indirect costs, jobsite office personnel, general field superintendence, general engineering, supervision of labor, bond and insurance premiums, and general field expense, and shall constitute full compensation for all costs not included as actual labor, materials, equipment, or Subcontractor costs. Markups for changed work shall not exceed the following:

- Labor: 25%
- Materials: 15%
- Equipment Rental: 15%
Bonds and Insurance 2%

The Contractor or Subcontractor, whomever actually performs the changed work, may add the markups to the total of allowable costs. When a Subcontractor performs work, the Contractor and any higher tiered Subcontractor may add as mark-up to the total of allowable costs an amount not to exceed five percent (5%), subject to the limitations of this Section.

When the Owner is entitled to credit for deleted work, a ten percent (10%) credit for deleted overhead of the Contractor or Subcontractor, as applicable, will be added to such credit.

9-10 COMPENSABLE UNAVOIDABLE DELAYS

Payments will be made as follows for compensable unavoidable delays, as defined in Section 7-12.02, “Unavoidable Delays”, in these Specifications.

9-10.01 Construction Equipment

Compensation will be paid for construction equipment idle as a result of a compensable unavoidable delay to the extent costs are incurred. The prices paid for equipment will be those in the current edition of the Caltrans publication, “Labor Surcharge and Equipment Rental Rates”, with the following modifications:

- The right-of-way delay factor for each classification of equipment will be applied to the rental rate.
- Compensation will be provided for the actual time of the delay, but not more than eight (8) hours per day.

Compensation will be provided for each day or portion of a day, excluding Saturdays, Sundays and holidays, for the duration of the delay.

9-10.02 Jobsite Indirect Costs

Indirect costs shall be limited to the following:

1. Actual payroll costs for field office staff incurred as a result of the delay, including management, supervision, safety, estimating, engineering, drafting, clerical, secretarial and accounting. A twenty-six percent (26%) surcharge for taxes, insurance, and all other payments made to or on behalf of the employee may be added to the payroll costs.

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

3. Applicable field office expenses for rent and utilities that are substantiated by invoices. Compensation for on-site plant, incidentals, and facilities for non-field office personnel including branch office and home office personnel will not be provided. Compensation for these items and other incidentals is included in the following Section (Section 9-10.03, “Markup for Compensable Unavoidable Delays”).

9-10.03 Markup for Compensable Unavoidable Delays

Except for compensable unavoidable delays associated with archeological and cultural resources as described in Section 10-12, “Archeological and Cultural Resources”, of these Specifications and right-of-way delays, fifteen percent (15%) shall be added to job-site indirect costs for onsite plant, incidentals, overhead, home and branch office costs, bonds and profit. The Contractor shall determine the distribution of the markup among the Contractor, Subcontractors, and suppliers.

9-10.04 Duplicated Overhead Costs

If the Contractor is compensated for delays in accordance with this Section, and the delay is 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.
9-11 LIMITATIONS ON PAYMENTS FOR CHANGED WORK

The Owner will not pay the Contractor for costs in excess of prevailing market values, unless the Contractor can establish, to the satisfaction of the Owner, that the Contractor has investigated all possible means of providing the work and that the excess costs could not be avoided. The Owner will be the sole judge of the necessity of incurring costs in excess of market value and whether the excess costs are directly required for performance of changed work. The Owner’s determination will be final.

9-12 TIME EXTENSIONS FOR CHANGES

The Contractor is entitled only to adjustment in Contract Time if completion of the entire Work is extended due to the change impacting the controlling item of work. Each proposal submitted by the Contractor in accordance with Section 9-4, “Changes to the Contract”, in this Section of these Specifications shall state the amount of extra time the Contractor believes the change added to the overall project schedule. Failure to request a time extension within the time allowed constitutes a waiver of the Contractor’s right to subsequently claim an adjustment in Contract Time.

9-13 EFFECT ON SURETIES OF CHANGES TO THE WORK

No alterations, time extensions, extra or additional work or other changes authorized by these conditions or any part of the Contract shall affect the sureties’ obligations under the Contract.

9-14 CONTRACT CHANGE ORDER (CCO)

The Owner will issue a Contract Change Order (CCO) for approval if a change to the Total Contract Price or Contract Time is necessary. The Contractor shall not be entitled to any adjustments in either Total Contract Price or Contract Time for changes performed before receipt of a Contract Change Order approved by the Board.

9-15 ACCEPTANCE OF ORDERS FOR CHANGES

The Contractor’s written agreement of a Contract Change Order, Field Instruction, or other written directive will constitute his final and binding agreement to the provisions of the Contract Change Order, Field Instruction, or other written directive, and a waiver of all claims in connection therewith, whether direct or consequential in nature, including those of any Subcontractors or suppliers. If the Contractor disagrees with any Contract Change Order, Field Instruction, or other written directive, the Contractor may submit a notice of potential claim to the Owner in accordance with Section 9-17, “Notice of Potential Claim”, in this Section of these Specifications. Disagreement with the provisions of a Contract Change Order, Field Instruction, or other written directive will not relieve the Contractor of the Contractor’s obligations under the Contract.

9-16 DISPUTE REGARDING CONTRACT REQUIREMENTS

If the Contractor and Owner fail to agree whether or not any work required by Owner 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 seven (7) Calendar 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 approximate 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 or Contract Time for the disputed Contract requirement.

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

If the Owner agrees with the Contractor’s written protest, the Total Contract Price and/or Contract Time will be adjusted through a Contract Change Order granting the Contractor’s request, in whole or in part. Granting the request in part will be deemed a denial of the portion not granted. If no action is taken by the Owner, the protest is denied thirty (30) Calendar Days after it was submitted. If Contractor disagrees with the denial, Contractor shall file a Notice of Potential Claim.
within (5) Five Working Days after denial or the protest. Failure to timely file waives any claim arising from the proposed additional work scope.

9-17 NOTICE OF POTENTIAL CLAIM

The Contractor shall not be entitled to payment of any additional compensation for any cause, including any disagreement, protest, or change, any act or failure to act by the Owner, or the happening of any event, thing or occurrence, unless the Contractor has given the Owner due advance written notice of potential claim as hereinafter specified. The written notice of potential claim shall set forth the reasons for which the Contractor believes additional compensation and/or time will or may be due, the nature of the costs and/or time involved, and, insofar as possible, the amount of the potential claim.

Except as required below, the Contractor shall promptly provide written notification to the Owner upon discovery of concealed or unknown conditions or any disagreement, protest, situation, event, or occurrence that may result in a claim. This notice shall be submitted no more than (5) Five Working Days after the discovery or occurrence of any event that may be the basis for a claim for additional compensation; failure to do so waives the claim.

9-18 SUBMISSION OF CLAIMS

9-18.01 Claims Less Than $375,000

Claims for three hundred seventy-five thousand dollars ($375,000) or less shall be in accordance with Section 20104 of the Public Contract Code.

9-18.02 Claims Greater Than $375,000

For claims greater than three hundred seventy-five thousand dollars ($375,000), the Contractor shall furnish the following claim documentation.

Contractor shall submit three (3) certified copies of all claim documentation. All claim documentation shall be complete when submitted. The evaluation of the Contractor's claim will be based on Owner's records and the claim documentation submitted by Contractor.

Claim documentation shall conform to generally accepted auditing standards and shall be in the following format:

1. Introduction and background
2. Issues
   a. Index of issues
   b. For each issue:
      • Background
      • Chronology
      • Contractor's position (reason for Owner's potential liability)
      • Supporting documentation of merit
      • Supporting documentation of damages
3. Critical path method schedules, as-planned versus as-built, and delay analysis
4. Productivity and damages exhibits
5. Summary of issues and damages

Supporting documentation of merit for each issue shall be cited by reference, photocopies, or explained. Supporting documentation may include, but not be limited to, general conditions, technical specifications, drawings, correspondence, conference notes, shop drawing logs, survey books, inspection reports, delivery schedules, test reports, daily reports, subcontracts,
fragmentary critical path method schedules, photographs, technical reports, requests for information, field instructions, and other related records.

Supporting documentation of damages for each issue shall be cited, photocopied, or explained. Supporting documentation may include, but not be limited to, certified detailed labor, materials, equipment, and construction equipment and services costs; purchase orders; invoices; project as-planned and as-built costs; subcontractor payment releases; quantity reports; other related records; general ledger and any other accounting materials.

Contractor shall update and revise its claim and provide additional supporting information whenever more accurate or more detailed information becomes available. In no event will Contractor assert claims based on hypothetical or speculative assumptions.

Each copy of claim documentation shall include the following certification, signed in the same manner as the Contract was signed:

"I, ______________, being the (must be an officer) of (general contractor), declare under penalty of perjury under the laws of the State of California, and do personally certify and attest that: I have thoroughly reviewed the attached claim for additional compensation and/or extension of time, and know its contents, and said claim is made in good faith; the supporting data is truthful and accurate; that the amount requested accurately reflects the Contract adjustment for which the Contractor believes the Owner is liable; and, further, that I am familiar with California Penal Code Section 72 and California Government Code Section 12650, et seq., pertaining to false claims, and further know and understand that submission or certification of a false claim may lead to fines, imprisonment and/or other severe legal consequences.

(Signature of officer)  (Date) "

If the Contractor is unable to support any part of a claim and it is determined that such inability is attributable to falsity of such certification or misrepresentation of fact or fraud by the Contractor, the Contractor shall be liable to the Owner for three (3) times the amount of damages which the Owner sustains, plus the cost of civil action, and may be liable to the Owner for a civil penalty of up to ten thousand dollars ($10,000) for each false claim.

9-19 ENGINEER’S DECISION

The Engineer may be requested to consider a dispute or claim if the Owner and Contractor representatives reach an impasse. A request for an Engineer’s Decision shall be made by the Contractor, in writing, within fourteen (14) days of the date of impasse. In requesting an Engineer’s Decision, each party shall provide a detailed description of their position and state the objections to the position of the other party. Evidence, records, and supporting information shall be included. Copies of all correspondence and information shall be provided to both parties.

The Engineer will review the facts of the dispute and may request additional information, evidence, or testimony. The Engineer will render a fair, impartial decision based on the Contract, and the evidence submitted by the Owner and Contractor representatives.

The Engineer may decline to consider a dispute and refer the matter to a Dispute Review Board, if provided for in the Contract.

9-20 ALTERNATIVE DISPUTE RESOLUTION

After all remedies and provisions of the Contract are exhausted, any dispute related to the Work or Contract may be resolved by Mediation if the Contractor and the Owner agree in writing. The Contractor shall submit a written request for Mediation no later than thirty (30) days after the Owner issues the final written decision.

Said Mediation is voluntary, non-binding, and intended to provide an opportunity for the parties to evaluate each other’s cases and arrive at a mutually agreeable solution. These provisions relating to voluntary Mediation shall not be construed or interpreted as mandatory arbitration.
9-20.01  **Initiation of Mediation**
Any party to a dispute or claim may initiate Mediation by notifying the other party or parties in writing.

9-20.02  **Request for Mediation**
A Request for Mediation shall contain a brief statement of the nature of the dispute or claim, and the names, addresses, and phone numbers of all parties to the dispute or claim, and those who will represent them, if any, in the Mediation.

9-20.03  **Selection of Mediator**
Upon receipt of a Request for Mediation, within thirty (30) days, the parties will meet and confer to select an appropriate Mediator agreeable to all parties. If the parties cannot agree on a Mediator, the party requesting mediation will request that the American Arbitration Association or JAMS appoint a mediator experienced in construction matters.

9-20.04  **Time and Place of Mediation**
The Mediator shall set the time of each Mediation session. The Mediation shall be held at any convenient location within Yuba County agreeable to the Mediator and the parties, as the Mediator shall determine. All reasonable efforts will be made by the parties and the Mediator to schedule the first session within thirty (30) Calendar Days after selection of the Mediator.

9-20.05  **Identification of Matters In Dispute**
At least ten (10) Calendar Days before the first scheduled Mediation session, each party shall provide the Mediator with a brief memorandum setting forth its position with regard to the issues that need to be resolved. Such memoranda shall be mutually exchanged by the parties.

9-20.06  **Confidentiality**
Information disclosed to the mediator and communications between the parties in relation to the mediation, are privileged pursuant to Evidence Code section 1115, et seq., and any other common law or statutory privilege related to mediation or settlement negotiation.

9-20.07  **Expenses**
The mediator’s fee and any administrative expenses charged for the mediation will be divided pro rata among the parties.

9-21  **NO ALTERNATIVE CLAIMS PROCEDURE**
Nothing in the Contract constitutes an agreement for an alternative claim procedure under the provisions of Government Code Section 930.2, nor relieves the Contractor of the requirements of Government Code, Part 3, Chapters 1 and 2 and Title 1, Division 3.6, Chapters 1, 2, 3, and 4.

9-22  **ASSIGNMENT OF CLAIMS**
The Contractor shall not assign any portion of the moneys due the Contractor without written Owner approval. No person other than the party signing the Contract has any claim under the Contract, except as provided in the Contract.
SECTION 10
ENVIRONMENTAL CONTROLS AT WORK SITE

10-1 DUST CONTROL
Dust control shall conform to the relevant article of the Special Provisions of these Specifications.

10-2 AIR POLLUTION CONTROL
The Contractor shall comply with all Federal, State, Owner, and local air pollution control rules, regulations, ordinances, and statutes that apply to the Work. The Contractor shall also comply with the requirements of any permits issued to the Owner as noted in the Special Provisions.

10-3 BURNING
Unless otherwise provided in the Special Provisions or approved by the Owner in writing, material shall not be burned on site or removed from the site for disposal by open burning.

10-4 EROSION, SEDIMENT, AND WATER POLLUTION CONTROL

10-4.01 General
The Federal Clean Water Act requires construction sites to prevent pollutants entering storm drain systems. Storm drain systems include both constructed and natural facilities, including streams, waterways, and other bodies of water. The Contractor shall protect the local storm drain system from pollution, and shall conduct and schedule operations to avoid erosion and sediments. Where erosion may cause water pollution due to the nature of the material or the season, the Contractor's operations shall be scheduled so temporary or permanent erosion control features are installed concurrently with, or immediately following, grading operations.

The Contractor is responsible for organizing and scheduling the Work to prevent, control, and/or abate water pollution. In order to provide effective and continuous control of water pollution, it may be necessary for the Contractor to perform the Work in small or multiple units, on an out-of-phase schedule, and/or with modified construction procedures. The Contractor shall coordinate water pollution control work with all other Contract work.

10-4.02 Owner Requirements
Unless specified otherwise in the Contract, all construction projects in Yuba County must have a water pollution control program as follows:

- Construction projects disturbing more than the threshold number of acres as defined in the State General Construction Permit must have a Stormwater Pollution Prevention Plan (SWPPP). (See Section 10-4.04 in this Section of these Specifications.)

- All other construction must comply with the minimum Owner requirements as described in Section 10-4.05 in this Section of these Specifications.

The minimum program required will be specified in the Special Provisions or by the Owner. Contractor may opt to comply with a more restrictive program than that which is required by the Special Provisions or the Owner. The Contractor must then conform to all requirements of both the minimum applicable program and the more restrictive program.

Before starting the Work, the Contractor shall develop a program for the control of water pollution during the Work. The program shall indicate how the Contractor proposes to effectively control water pollution during the Work. The program shall also describe how the Contractor plans to monitor the effectiveness of the program. The program shall show erosion control work and all water pollution control measures the Contractor plans to implement in connection with the Work. The Contractor shall not perform any clearing, grubbing or earthwork on the project, other than that specifically authorized in writing by the Owner, without a water pollution control program. The Contractor shall submit the program to the Owner for review.
The Owner is not liable to the Contractor for any portion of the water pollution control program or subsequent revisions nor for any delays to the Work due to the Contractor’s failure to prepare and implement a program nor for any delays as a result of Owner review.

10-4.03 Regulations, Ordinances, Permits, and Specifications

The Contractor is responsible for compliance with all Federal, State, City, County, Owner and local permits, rules, regulations, ordinances, statutes, and Owner directions that apply to erosion, sediment, and water pollution control. The Contractor, at a minimum, shall comply with the most stringent regulation, ordinance, permit, or specification of the following applicable to the Work:

- This Section and the Special Provisions
- Yuba County Grading Permit
- State of California Construction Activities Storm Water General Permit
- Specific or general National Pollution Discharge Elimination System (NPDES) or other permits that cover the Work or are specific to the area of the Work
- The Yuba County NPDES Permit

The Contractor’s responsibility to provide water pollution control under this Section ends at Field Acceptance of the Work unless subsequent site maintenance is included in the Contract as an item of work. (See Section 7-21, “Final Inspection and Field Acceptance”, of these Specifications.). All permits shall be obtained prior to commencement of construction.

10-4.04 Stormwater Pollution Prevention Plan

Construction projects disturbing more than the threshold number of acres must obtain coverage under the State Water Resources Control Board (SWRCB) General Storm Water Permit to Discharge Storm Water Associated with Construction Activity (General Permit). The General Permit is issued by the SWRCB and is enforced by the County and the Central Valley Regional Water Quality Control Board (Regional Board). Failure to obtain General Permit coverage or to comply with the requirements of the General Permit could result in significant daily fines. General Permit coverage is obtained by filing for the NOI, Submission of the SWPPP plan and certifying the Notice of Intent (NOI) with the Regional Board. The Owner will be responsible for filing the NOI and SWPPP development unless specified otherwise in the Special Provisions. The General Permit also requires inspection of erosion and sediment control measures before, during, and after storm events. Implementation of the SWPPP requirements will be the responsibility of the Contractor and SWPPP inspection will be the responsibility of the Owner.

The Owner will prepare a SWPPP in accordance with the General Permit and State’s guidelines that address the new SWPPP regulations that became effective as of July 1, 2010, and other permit or conditions specified in the Special Provisions, regardless of whether or not the Work is subject to said permit. The SWPPP will be prepared by an individual knowledgeable about storm water pollution prevention methods and requirements shall be signed by the QSD (the preparer of the SWPPP) and approved by all concerned agencies before Work commences.

The BMP requirements specified in the SWPPP shall be implemented by the Contractor prior to commencement of the work. The Contractor will be responsible for keeping the SWPPP onsite at all times and making the plan available for Owner, County and Regional Board Inspectors upon request. The Owners QSP will update the SWPPP for the various phases of the project and submit updates to the Owner for review.

The contractor shall be responsible for:

- Construction Site Maintenance and Control including but not limited to:
- BMP Installation and maintenance
- Stabilized Construction Entrances
• Minimize Bare Soil exposure and cover all areas of inactive construction per the General Permit

• Install and maintain temporary and permanent erosion and sediment control best management practices as specified in the SWPPP plan

10-4.05 **Minimum Owner Requirements**

If the Work does not fall under Sections 10-4.04 in this section of these Specifications, the Contractor, prior to commencing work, shall prepare a water pollution control program detailing the following:

- Location of soil stockpiles and 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
- Monitoring procedures

The water pollution control program shall be submitted to the Owner for review.

10-4.06 **Compliance**

Compliance with the provisions in this Section does not relieve the Contractor of the responsibility for compliance with other Contract provisions.

The Contractor shall perform routine inspection and maintenance of BMP’s. Inspections shall be done prior to, during, and after each rain event. The Contractor is solely responsible for preparing and maintaining inspection and monitoring records; and for including those records in the SWPPP, copies of which shall be available to the Owner for review upon request.

The Contractor shall immediately correct or replace any ineffective BMP. If the measures taken by the Contractor are inadequate to effectively control water pollution, the Owner may direct the Contractor to revise the operations and water pollution control program. The Owner may restrict work from being performed until the water pollution control measures are adequate and, if required, a revised water pollution control program is in place. Continued noncompliance may result in the Owner suspending the Work in accordance with Section 5-21, “Temporary Suspension or Delay of Work”, of these Specifications. The Owner reserves the right to take corrective action and withhold Owner costs for corrective action from progress payments or final payment in accordance with Section 8-8, “Withholdings/Denial of Progress Payment Request”, of these Specifications.
Any fines, including third-party claims, levied against the Owner as a result of Contractor's non-compliance are the Contractor's sole responsibility and will be withheld from progress payments or final payment in accordance with Section 8-8, “Withholdings/Denial of Progress Payment Request”, of these Specifications.

10-4.07 Payment

Except as otherwise provided in the Special Provisions, full compensation for compliance with all applicable erosion and sediment control and storm water pollution and prevention requirements will be included in the prices paid for the various Contract items of work and no additional compensation will be allowed.

10-5 CONTROL OF WATER IN THE WORK

When groundwater or surface run-off water is encountered, the Contractor shall furnish, install, maintain, and operate all necessary machinery, appliances, and equipment to keep excavations and wet areas reasonably free from water for foundation construction. De-watering operations shall remain in effect until the Work has been completed, inspected, and approved, and all danger of flotation and other damage is eliminated. Water pumped from waterways, trenches, excavations, or low spots shall be disposed as specified in the Special Provisions or as directed by the Owner. The Contractor is not allowed to dispose of any water that contains sediment or other contaminants. The Contractor is responsible for providing filtration, settlement, or disposal facilities as required to comply with the requirements of Section 10-4, "Erosion, Sediment, and Water Pollution Control", in this Section of these Specifications.

10-6 NOISE CONTROL

The Contractor shall comply with all local noise control and noise level rules, regulations, and ordinances that apply to the Work. The Special Provisions may contain specific or additional requirements. Internal combustion engines used for any purpose on the Work must be equipped with a muffler recommended by the manufacturer.

10-7 CONTAMINATED AND HAZARDOUS MATERIALS OR ENVIRONMENTS

10-7.01 Contaminated or Hazardous Materials

The Contractor shall comply with all Federal, State and local rules, regulations, ordinances, and statutes that apply to the handling, storage, and disposal of contaminated and hazardous materials. All work involving material containing asbestos must be performed in accordance with California Labor Code, Sections 6501.5 through 6510 and California Code of Regulations, Title 8, Section 5208 and any other pertinent regulations.

10-7.02 Hazardous Environments

Existing sewers and appurtenances exposed to sewage and industrial wastes are considered contaminated with disease-causing organisms. The Contractor shall advise all personnel (including Subcontractor personnel) in contact with contaminated facilities, debris, wastewater, or similar items of the necessary precautions to avoid disease. It is the Contractor's responsibility to urge all personnel to observe a strict regimen of proper hygienic precautions, including any inoculations recommended by the local public health officer.

10-8 USE OF EXPLOSIVES

The Contractor shall not use explosives on the Work unless the Owner grants permission in writing or the use of explosives is specified in the Contract Documents, and then only under such conditions as the Owner prescribes.

10-9 SANITARY REGULATIONS

The Contractor shall comply with all Federal, State and local rules, regulations, ordinances, and statutes with respect to sanitation. The Contractor shall obey and enforce such sanitary requirements, and shall take precautions against contagious or infectious diseases.
Sanitary conveniences for the use of the workers shall be obscured from the public and constructed or installed and maintained by the Contractor. The Contractor shall strictly enforce use of such facilities.

10-10  CONFINED SPACES

10-10.01  Contractor Responsibilities and Qualifications

When working in a confined space, the Contractor shall comply with all confined space requirements of Title 8, General Industry Safety Orders (Cal-OSHA), Article 108, Sections 5156 through 5159.

Prior to any confined space entry, the Contractor shall submit for Owner review:

1. The Contractor's procedures for confined space operations.

2. Copies of all documents and certificates that qualify the Contractor to safely perform work in permit-required confined spaces. The Contractor shall also submit all applicable Material Safety Data Sheets (MSDS) and hazard information on chemicals, products, materials, or procedures.

3. Sufficient documentation and evidence that a permit-required confined space entry can be made in accordance with Article 108. Documentation shall include, but not be limited to the following:
   - Equipment availability, suitability, and integrity
   - Personnel training
   - Experience
   - Supervision
   - Safety
   - Accident experience
   - Permit-required confined space policy
   - Hot work procedures (if applicable)
   - Lock-out/tag-out procedures (if applicable)

The Contractor's submittal shall be made thirty (30) Calendar Days prior to any confined space entry in accordance with Section 5-8, “Contractor’s Submittals”, of these Specifications.

The Contractor will not be allowed to make a permit-required confined space entry until the Owner has reviewed the Contractor’s qualifications and proposed methods.

The Contractor shall conform to the procedures established by the Contractor’s submittal during all confined space operations. Contractor shall provide all monitoring and safety equipment necessary to perform pre-entry checks of confined spaces. The Contractor shall also provide all monitoring, safety, and communications equipment required for confined space operations.

10-10.02  Owner Responsibilities for Permit Confined Spaces

The Contractor shall be provided with information regarding known hazards and known or potential permit spaces.

After the Owner has reviewed the Contractor’s submittal to perform permit-required confined space entry work, the Contractor will be provided with the following:

- Notification of the location, physical characteristics, known hazards, etc. regarding the permit-required confined space the Contractor anticipates entering.
• Information regarding safety items (e.g. nearby emergency equipment), precautions, procedures, safeguards, etc. installed or implemented and that may be available to the Contractor's employees in or near the permit-required confined space.

A debriefing session will be held with the Contractor at the conclusion of the entry operation to ascertain if any hazards were encountered or created and remain.

The Owner's failure to identify a confined space does not relieve the Contractor of the responsibility for compliance with the requirements of Article 108 (Cal-OSHA) and this Section (Section 10).

10-10.03 Existing Sewers and Storm Drains

Because of the potential danger of solvents, gasoline, and other hazardous material in existing sewers and storm drainpipes, these areas shall be treated as permit-required confined spaces unless it has been proven, through appropriate testing, that no hazards exist or are expected to develop.

10-10.04 Joint Owner – Contractor Entries

Unless otherwise directed in writing by the Owner, when Owner employees work along side the Contractor in a permit-required confined space, the permit procedures for both the Owner and the Contractor shall be used.

10-11 CLEANING UP

The Contractor shall keep the site in a neat and presentable condition. The Contractor shall dispose of surplus materials, grade the site smooth, clean out all drainage ditches and structures, and repair any fences or other property damaged during the progress of the Work. When material is disposed of outside of an easement, street, or highway right-of-way, or other Owner-owned properties, the Contractor shall do so in accordance with the Contract Documents.

10-12 ARCHEOLOGICAL AND CULTURAL RESOURCES

If archeological or cultural resources are discovered during the Work, the Contractor shall cease all construction operations in the vicinity of the discovery until a qualified archeologist can assess the value of these resources and make recommendations to the State Historic Preservation Officer. Archeological and cultural resources include artifacts, large amounts of bone, shell, or flaked stone, and other evidence of human activity. If the State Historic Preservation Officer or the Owner directs that work be temporarily ceased at the location of an archeological or cultural find, the Contractor shall temporarily suspend work at the location.

If the Owner or the State Historic Preservation Officer temporarily suspends a portion of the Work for cultural purposes, any associated delays are considered unavoidable in accordance with Section 7-12.02, “Unavoidable Delays”, of these Specifications.

10-13 PROTECTION OF EXISTING TREES AND RIPARIAN AND WETLAND HABITATS

Special attention shall be given to protection of certain native and ornamental trees or shrubs, landmark trees, riparian and wetland habitats, and all native oak trees in Yuba County. Additional requirements for specific trees may be shown on the Plans, or designated in the Special Provisions, Technical Specifications or by the Owner. The following measures specify minimum requirements for protection of existing trees and vegetation. The term “Certified Arborist” is defined as a current certificate holder as established by the International Society of Arboriculture.

• No trees shall be removed or disturbed unless specifically designated for removal on the Plans or by the Owner. Every reasonable effort shall be made to avoid creating conditions adverse to the trees' health. The Contractor shall notify the Owner if any construction operations called for in the Contract Documents may cause damage to any existing trees or vegetation to be preserved.
- Protective fencing shall be installed around riparian and wetland habitats to be preserved in portions of the drainage ditch at the Feather River levee tie-in. No activity shall occur within the fenced areas.

- The natural ground within the dripline of protected trees shall remain as undisturbed as possible. The area within the dripline is a critical portion of the root zone and defines the minimum protected area of each tree. The dripline area shall be identified on the ground by a circle with a radius measurement from the trunk of the tree to the tip of its longest limb. The limb cannot be cut back in order to change the dripline. Removing limbs within the dripline does not change the originally protected root zone. Temporary protective fencing, with a minimum height of four feet (4'-0") shall be installed continuously around the dripline perimeter of the protected trees prior to beginning the Work. The Contractor shall provide fencing as needed to meet the requirements of this project. The location of all proposed temporary protective fencing shall be staked by the Contractor, for approval by the Engineer, before the start of temporary protective fencing installation. Temporary protective fencing shall be completely installed in place and approved by the Engineer before the start of any construction operations.

- No signs, ropes, cables, or any other items shall be attached to a protected tree, except those cables recommended by a Certified Arborist for limb support.

- No vehicles, construction equipment, temporary or mobile buildings, supplies, materials, or facilities shall be driven, parked, stockpiled, or located within the dripline of protected trees.

- Where it is not possible to establish a protected zone at the dripline (i.e., project work requires activity within the dripline), tree trunks and limbs greater than 2 inches in diameter shall be protected with a cushioning material to prevent incidental damage. The Contractor shall propose a protective cushioning material and method of attachment to the Engineer for approval prior to construction.

- Pruning of tree canopies is likely to be required for equipment access and to prevent damage to trees during construction activities. Pruning shall be the minimum required for equipment clearance. All protected trees within the Work area that require pruning for construction clearance shall be pruned prior to commencement of construction. All branches shall be cut cleanly without peeling, tearing, splitting, or damage to the branch collar. All cuts shall be thinning cuts (i.e., removal at the point of attachment or to a node) rather than heading cuts or stub cuts (a cut between points of attachment or nodes). No covering, chemical or liquid treatment of pruning cuts shall be used. Branches greater than 2 inches in diameter shall be cut only under the direction of a Certified Arborist. No single tree shall be subjected to removal of greater than 20% of the tree canopy. Pruning of more than 20% of the canopy shall be done only under the direction of a Certified Arborist and with the approval of the Engineer.

- It is likely that tree roots will be encountered within the scope of grading. For all roots encountered during construction operations, roots shall be cut cleanly by hand to expose minimum tree tissue surface area to disturbance (i.e., cuts shall be made directly across the cross section rather than at an angle across the root). Damaged roots shall be traced back and cleanly cut behind any split, crack, or other damage. Exposed roots shall be immediately backfilled with soil to prevent drying. If, due to the construction, the roots must be unearthed for more than two (2) hours, they must be kept moist and covered with wet burlap or an approved equal until they are covered by moist earth. Supporting structural buttress roots that provide stability to the tree or keep it from toppling shall be protected in place. The Contractor shall hand-dig in the dripline of protected trees to prevent root cutting and mangling. Roots greater than 2 inches in diameter shall be cut only under the direction of a Certified Arborist and with the approval of the Engineer. No single tree shall be subjected to root pruning for greater than 20% of the total area beneath the tree canopy (dripline). Root pruning of more than 20% of the area beneath dripline shall be only be done under the direction of a Certified Arborist and with the approval of the Engineer.
• Unauthorized grade cuts or fills are not permitted within the dripline of protected trees. Cuts or fills necessary beyond the dripline but near the protected trees shall be contoured to drain away from the protected tree's dripline.

• No utility line trenching will be permitted within the driplines of protected trees. If it is necessary to install underground utilities within the dripline of a protected tree, the utility line shall be either bored or drilled to avoid damaging roots. If the Owner determines boring or drilling is inappropriate, the utility line trench may be hand dug under the direct supervision of a Certified Arborist to avoid damaging roots.

• All pruning and other activities involving trees shall follow current professional practices and standards as recommended by the International Society of Arboriculture.

• The Contractor shall immediately notify the Engineer if any protected trees or vegetation are damaged by the Contractor's operations. The Contractor shall remove any damaged vegetation at the Contractor's own expense as directed by the Engineer. If, in the opinion of the Engineer, existing vegetation to be protected is damaged during construction, the Contractor, at no additional cost to the Owner, shall replace such damaged plants with plants of the same species from sources and at sizes and quantities approved by the Engineer as adequate for replacement. Determination of extent of damage, value of damaged plants, and suitable replacement will rest solely with the Engineer.

• The Engineer shall make weekly inspections to ensure the Temporary Protective Fencing stays in place and to monitor the health of the trees. The Contractor shall undertake any required action at the discretion of the Engineer to ensure the health of the trees (e.g., supplemental irrigation, fertilization, soil compaction remediation, etc.).

• The Contractor shall completely remove and lawfully dispose of all vegetative debris (such as from authorized tree removal and pruning activities) offsite.

10-14 PROTECTION OF OTHER PLANTS AND ANIMALS
Provide mitigation measures for protection of plants and animals during project work as provided in the Special Provisions.
SECTION 11
PRECONSTRUCTION PHOTOGRAPHS AND RECORD DRAWINGS

11-1 GENERAL
Preconstruction photographs and Record Drawings are required on all Owner Work.

11-2 PRECONSTRUCTION PHOTOGRAPHS
Preconstruction photographs shall be taken by the Contractor at one-hundred foot (100’) intervals along the route of the Work before any construction begins. The view in each photograph shall include a sign showing the date, name of the Project, lateral or street, and applicable station designation. The sign shall not block the important areas of the view and shall be legible in a three and one-half inch by five inch (3-1/2” x 5”) print. Each photograph shall be taken from a point between four feet (4’) and eight feet (8’) above the ground. All prints shall show good details in both shadow and sunlit areas. Negatives may be of any size provided minimum negative resolution throughout the major area of the negative is one hundred (100) lines per inch multiplied by the enlargement factor necessary to produce an eight inch by ten inch (8” x 10”) print.

The views in preconstruction photographs shall include the entire construction zone and, in particular, show the interface between the right-of-way and construction zone, and abutting property features such as, but not limited to, condition of existing streets, sidewalks, driveways, fences, landscaping, buildings abutting work site, and existing surface utility facilities on and close to the Work.

All essential features of the project area shall be shown accurately. The Owner may order additional photographs showing additional features or orientations, if the Owner determines that all essential features are not accurately or adequately shown.

A sample of twenty-four (24) photographs shall be submitted to the Owner for approval before proceeding with the remaining photographs. All photographs which do not conform to these Specifications, as determined by the Owner, shall be retaken.

The Contractor shall submit to the Owner one (1) three and one-half inch by five inch (3-1/2” x 5”) color glossy print, and the negative, of each photograph taken. Prints shall be submitted in a three-ring photo album binder with clear plastic covered fillers, four (4) photos each side, grouped according to stationing. The name and number of the Contract and Contractor’s name shall appear on the binder cover. Each group of prints shall be identified by a label which projects beyond the edge of filler and is easily recognized. Negatives may be placed within the filler sleeves or submitted separately. The Owner or Engineer may direct the Contractor to submit all photographic records in electronic format.

A video tape of the jobsite and entire route of work in a VHS format shall also be submitted. The timing, content and quality requirements for the photographs shall apply to the video tape.

11-3 RECORD DRAWINGS
Unless otherwise specified in the Special Provisions, the Contractor shall comply with the following requirements regarding record drawings.

The Contractor shall maintain a neat and accurately marked set of Record Drawings, which shall be provided to the Owner for review and approval prior to final acceptance of the Work. The Record Drawings shall represent the Work as constructed and document changes to the Work shown on the Project Plans, and shall show the actual as-constructed conditions of installed or modified systems, equipment, and material.

Record Drawings shall be produced by marking a full size copy of the Project Plans as follows:

**Red** - Additions including notes and dimensions.

**Green** - Deletions (by hash marks or appropriate lines through the deletion.)
Graphite (gray) - General comments and notes used by Contractor or Owner and not required on the as-built.

Yellow - Work completed as shown and used by Owner in field review of the as-built, during the submittal phase.

Blue - Owner verification and notes required to be added and noted by Owner in review of the as-built, during submittal phase.

The Record Drawings shall show, by field measured dimensions, the exact locations of all underground work, including all destroyed wells, piping and components, and the final elevations and locations of all improvements constructed, modified or adjusted. Record Drawings shall be available for inspection by the Owner at all times and shall be updated at least weekly with all Field Instructions and other written directives, Contract Change Orders, and Contract adjustments shown thereon and initialed by the Owner. Progress payments or portions thereof may be withheld if Record Drawings are not kept up to date.

Unless otherwise specified in the Special Provisions, the Contractor shall submit two (2) sets of Record Drawings to the Owner at the final inspection. These Record Drawings shall include certification by the Contractor that the Record Drawings are a true representation of the Work as actually constructed. The Work will not be formally accepted until the Record Drawings are provided to and approved by the Owner. Final payment or a portion thereof may be withheld if final Record Drawings are not provided.
SECTION 12
CONSTRUCTION AREA TRAFFIC CONTROL

12-1 GENERAL

Construction area traffic controls and devices shall conform to the requirements in the following Sections of these Specifications: Section 6-11, “General Safety Requirements”; Section 6-12, “Public Convenience and Safety”; Section 6-13, “Public Safety and Traffic Control”; Section 6-14, “Traffic Control Plans (TCP)”; Section 7-8, “Peak Hours, Hours of Darkness, Holidays, and Weekends”; and this Section (Section 12). Attention is directed to the “Manual of Traffic Controls for Construction and Maintenance of Work Zones” (hereafter referred to as the “Manual”) published by Caltrans. All traffic controls and devices shall be as specified in the Manual unless otherwise indicated herein or in the Contract. At no time shall the requirements in these Specifications be construed as to reduce the minimum standards of the Manual. Copies of the Manual may be purchased from the California Department of Transportation, 1900 Royal Oaks Drive, Sacramento, California 95815.

All traffic control devices including, but not limited to, traffic cones or portable delineators, telescoping flag trees, arrow boards, barricades, and signs shall be placed before beginning work and shall be removed from the right-of-way at the end of each day or shift, or, for long-term closures, when no longer needed, and shall be placed so as to not obstruct bicycle lanes and pedestrian facilities. All traffic control devices left in the right-of-way by the Contractor are subject to removal by the Owner. The Contractor shall be required to pay any costs incurred by the Owner associated with the removal of these devices.

No equipment shall be parked within any traffic lanes, medians, or within the public right-of-way at any time of day or night, including holidays and weekends, without an approved lane or road closure. The Contractor shall notify the Owner a minimum of five (5) Working Days in advance of any lane closure and twenty (20) Working Days in advance of any road closure. Attention is directed to Sections 6 and 7 of these Specifications for additional information.

12-2 FLAGGING

12-2.01 Flaggers

Flaggers shall perform their duties and shall be provided with the necessary equipment in accordance with the current “Instructions to Flaggers” published by Caltrans. The equipment shall be furnished and kept clean and in good repair by the Contractor at the Contractor’s expense. All flaggers shall be trained as required by Cal/OSHA Regulations, and proof of such training shall be made available by the Contractor upon request by the Owner.

Flaggers shall be used where necessary to control the flow of traffic through the construction site and shall be used in all cases where traffic is being routed through the construction zone under one-way control, or when ordered by the Owner.

12-2.02 Flagging Costs

Unless specified otherwise in the Special Provisions, the cost of furnishing all flaggers, including transporting flaggers to provide for passage of public traffic through the construction site in accordance with the provisions in Sections 6-12, “Public Convenience and Safety”, and 6-13, “Public Safety and Traffic Control”, of these Specifications shall be considered included in other items of work and no additional compensation will be made.

12-3 TRAFFIC-HANDLING EQUIPMENT AND DEVICES

12-3.01 General

In addition to the requirements in the Manual, all devices used by the Contractor in the performance of the Work shall conform to the requirements in this Section (Section 12).
Traffic-handling equipment and devices damaged from any cause during the progress of the Work shall be repaired or replaced by the Contractor at the Contractor’s expense.

12-3.02  **Cones**

Traffic cones shall be of good commercial quality, flexible material suitable for the purpose intended. Reflective bands shall be used with cones when lane or road closures are conducted at night. The outer section of the portion above the base of the cone shall be a highly pigmented fluorescent orange polyvinyl compound. The overall height of the cone shall be at least twenty-eight inches (28”). The base shall be of sufficient weight and size or shall be anchored in a manner such that the traffic cone will remain in an upright position.

If the traffic cones are damaged, displaced, or are not in an upright position, they shall immediately be replaced or restored to their original location and position by the Contractor.

The traffic cones shall be placed at intervals as shown in the Manual, or as directed by the Owner.

When no longer required for delineation, all portable cones shall be removed from the work site.

12-3.03  **Portable Channelizers**

Portable channelizers shall be fabricated from materials having sufficient rigidity to remain upright when unattended, but shall be flexible enough to collapse upon impact by a vehicle. The base shall be of such shape as to prevent roll after impact. The base shall be of sufficient mass or shall be anchored in a manner such that the channelizer shall remain in an upright position. Ballast, if used for the bases of portable channelizers, shall be sand or water. On long-term closures, channelizers shall be affixed to the pavement as required by the Owner.

If the portable channelizers are displaced or are not in an upright position, the channelizers shall immediately be replaced or restored to their original location and position by the Contractor.

The vertical portion of the portable channelizer shall be of a fluorescent orange or predominantly orange color. Reflective bands shall be affixed to all channelizers used for night operations. The posts shall be not less than three and one-half inches (3-1/2”) in diameter. The minimum height shall be three feet (3’) above the road surface. When no longer required for delineation, all portable channelizers shall be removed from the work site immediately.

12-3.04  **Telescoping Flag Trees**

Telescoping flag trees shall be of good commercial quality material, clean and intelligible, suitable for the purpose intended, and capable of maintaining an upright position at all times while in use.

12-3.05  **Portable Flashing Beacons**

Portable flashing beacons shall comply with Section 12-3.05 of the State Specifications. Portable flashing beacons shall be assembled to form a complete, self-contained, flashing beacon that can be delivered to the worksite and placed into immediate operation. Beacons shall be checked periodically to ensure functionality. Any beacons found to be in a condition that would prevent them from providing adequate warning at night shall be promptly removed from service and replaced with an operational unit.

12-3.06  **Barricades**

Barricades are designated by type according to function and physical characteristics. Type I, II and III barricades are portable construction barricades; Type IV barricades are intended for permanent installation. Type I, II, and III barricades shall conform to the provisions, details and dimensions as specified in the Manual. Type IV barricades shall conform to the Contract.

12-3.06.A  **Materials**

Materials for Type I, II and III barricades shall conform to provisions of the Manual.

Type IV barricades shall be constructed of materials as follows:
• Posts shall be four inches by four inches (4”x4”), nominal size, highway post grade redwood or No. 2 heart structural grade redwood (1000f).

• Rails shall be two inches by six inches (2”x6”), nominal size light framing construction grade Douglas fir, free of heart center.

• Object markers for mounting on each post between the rails shall be red reflectorized sheeting, tape or plates, [three inches by five inches (3”x5”) minimum size]. Where called for on the Plans, object markers shall be Type N markers (9- spot) conforming to the provisions of the Manual.

• Paint for posts and rails shall consist of a minimum of one coat of wood primer and two coats of white exterior latex enamel, conforming to the provisions of the relevant technical provision of these Specifications.

Barricade warning lights shall conform to the provisions as specified in the Manual. Unless otherwise specified in the Contract, Type A Barricade Warning Lights (flashers) shall be used.

The Contractor shall establish the necessary quality control to assure compliance with these Specifications. No Certificate of Compliance, as such, will be required for Type IV barricades. A Certificate of Compliance may be required for Type I, II and III barricades for warning lights to assure compliance with these Specifications.

12-3.06.B Installation and Maintenance

12-3.06.B(1) Construction Barricades

Construction barricades of the type specified in the Special Provisions shall be furnished and set at locations as directed by the Owner. The barricades shall be maintained for as long as necessary and shall be checked for their position location at the close of each day's activity and more often as necessary.

The batteries of warning lights shall be maintained at a high rate of charge at all times.

12-3.06.B(2) Permanent Barricades

The posts of the barricade shall be placed in holes excavated to the required depth as shown on the Plans. The space around the posts shall be backfilled with selected earth free of deleterious material and compacted. Wood wedges may be used to plumb posts prior to backfilling. Wood posts of barricades shall not be embedded in concrete.

Rails shall be attached to posts with 16d-galvanized nails.

All exposed wood surfaces shall be given one application of wood primer and two (2) coats of white exterior enamel, conforming to the provisions of the relevant technical provision of these Specifications. After painting, the object markers shall be attached to each post as shown on the Plans.

12-3.07 Flashing Arrow Sign (FAS)

The use of a Flashing Arrow Sign (FAS) is required on major streets for lane closures during hours of darkness and for all lane closures lasting more than two (2) hours, or as specified in the Contract or as directed by Owner. Major streets are those roadways with two or more marked traffic lanes in each direction. An exception may be allowed in situations where it is determined by the Owner that the amount of traffic does not warrant the use of a FAS.

FAS shall be finished with commercial quality flat black enamel and shall be equipped with yellow or amber lamps that form arrows. Each lamp shall be provided with a visor and the lamps shall be controlled by an electronic circuit. The control shall be capable of dimming the lamps by reducing the voltage to fifty percent plus or minus five percent (50% ± 5%) for nighttime use.
Each FAS shall be mounted on a truck or on a trailer and shall be capable of operating while the vehicle is moving and being placed and when the FAS is operating in place or being maintained. The trailer on which the FAS is mounted shall be equipped so that it can be leveled and plumbed.

Power to operate the sign shall be obtained from the vehicle on which the sign is mounted or from a generating plant mounted on the vehicle. The power supply shall be monitored by the Contractor and, if failure is observed, a replacement FAS shall be put in use immediately either by the Contractor or the Owner. If the Owner provides and places the replacement FAS, the Contractor is responsible for reimbursement of the Owner's costs.

12-3.08 Construction Area Signs

12-3.08.A General Requirements

The Contractor is responsible for informing the public of traffic conditions existing within the construction area at all times by placing warning and advisory signs. The term “Construction Area Signs” shall include all temporary signs required for the direction of public traffic through or around the Work during construction. These signs are shown in or referred to in the current Manual. All construction area signs shall be installed at the locations shown on the Plans and as directed by the Owner.

All construction area signs shall conform to the dimensions, color, and legend requirements of the Plans, the current Manual, and these Specifications. All sign panels shall be the product of a commercial sign manufacturer, and shall be as specified in these Specifications.

12-3.08.B Covering Signs

The Contractor may be required to cover certain signs during the progress of the Work. Covers for construction area signs shall be of sufficient size and density to completely block out the message so that it is not visible either during the day or at night. Covers shall be fastened securely to prevent movement caused by wind.

12-3.08.C Cleaning Signs

The Contractor shall clean all construction area sign panels at the time of installation and as often thereafter as the Owner determines to be necessary, but at least once every month.

12-3.08.D Used Signs

Used signs will be considered satisfactory for use if approved by the Owner before placement.

12-3.08.E Replacement and Backup Signs

To properly provide for changing traffic conditions and damage caused by public traffic or otherwise, the Contractor shall be prepared to furnish additional construction area sign panels, posts, and mounting hardware or portable sign mounts on short notice. The Contractor shall maintain an inventory of the commonly required items at the jobsite or shall make arrangements with a supplier who is able, on a daily basis, to furnish the items on short notice.

12-3.08.F Stopping or Parking Prohibition (Tow-Away Zone)

The Contractor may install "Tow-Away" or "No Parking, No Stopping" signs in critical areas to provide traffic lanes or work areas. Prohibition of stopping or parking, or the installation of tow-away signs, requires the approval of and issuance of a permit from the Owner and the City or County. The Contractor shall notify the Owner five (5) Working Days in advance of the placement of the signs. After approval of the stopping or parking restrictions or tow-away signs, the Contractor shall furnish and place approved "NO STOPPING" or "NO PARKING" signs where directed. The messages on the signs must include the dates and times of the required prohibition. Article 22652 of the California State Vehicle Code requires a sign to be in place twenty-four (24) hours before it becomes legally enforceable.
12-3.08.G Protection, Maintenance, Removal, Storage, and Resetting of Signs

The protection and maintenance of existing signs and the removal, protection, storage, and resetting of traffic signs that are affected by the Work is the responsibility of the Contractor, as directed by the Owner or as specified in the Special Provisions. The Contractor shall inventory all existing signs prior to the start of work. The Owner will confirm the inventory in writing prior to the start of work.

12-3.08.H Movement of Traffic Signs and Traffic Control Facilities

Existing traffic signs and traffic control facilities within the limits of the Work shall not be moved except as necessary to prevent them from being damaged by construction operations or as directed in writing by the Owner. When a sign needs to be removed because it interferes with the Contractor’s work, it shall be done only with the written permission of the Owner.

12-3.08.I “Road Construction Ahead (C-18)” and “End of Construction (C-13)” Signs

All scheduled road construction within the right-of-way lasting longer than twenty-four (24) hours shall have permanent construction signs installed. “Road Construction Ahead” signs shall be installed at the approaches to the Work and “End of Construction” signs shall be installed at the egresses of the Work. Each sign shall be permanently placed on a four-inch by four-inch (4” x 4”) post and shall remain in place until the Work has been completed, or until directed by the Owner in writing. Exact placement of the signs will be determined in the field by the Owner and County.

12-3.08.J Contractor Furnished Signs

The size, wording, and location of all signs furnished and erected by the Contractor must be approved by the Owner prior to placement.

12-3.08.K Obscuring Visibility and Conflicting With Meaning

Signs or other protective devices furnished and erected by the Contractor shall not obscure the visibility of, nor conflict in intent, meaning, and/or function with existing signs, lights, or traffic control devices, or any construction area signs, lights, and traffic control devices.

12-3.08.L Permanent Construction Signs

Permanent construction signs shall be installed on wood posts in the same manner shown on the Plans for installation of roadside signs.

Post sizes and numbers of posts shall be as shown on the Plans, except that when stationary mounted signs are installed and the type of sign installation is not shown on the Plans, post size and the number of posts will be determined by the Owner. Posts shall be good, sound, wood posts, suitable for the purpose intended.

Sign panels for stationary signs shall consist of Type IIIA reflective sheeting applied to a sign substrate. Sign panels shall conform to the requirements specified for aluminum signs in the Caltrans “Specifications for Aluminum Signs”. Copies of the Caltrans “Specifications for Reflective Sheeting Aluminum Signs and Framing Details for Sheet Aluminum Signs” may be obtained from the Caltrans Office of Business Management, Materiel Operations Branch, 1900 Royal Oaks Drive, Sacramento, CA 95815.

Sign panels shall also conform to the following:

- Type IIIA reflective sheeting and aluminum substrates shall be as specified in the “Specifications for Reflective Sheeting Aluminum Signs”. Sign substrates fabricated from materials other than aluminum shall be as specified in the Special Provisions.
- Legend and border may be applied by a screening process or by use of pressure sensitive cut-out sheeting. Size and spacing of letters and symbols shall be as depicted on the sign specification sheets published by Caltrans. Copies of the sign specifications may be purchased from the Caltrans Publication Unit, 1900 Royal Oaks Drive, Sacramento, CA 95815.
• All rectangular sheet aluminum signs over 1375 mm measured along the horizontal axis, and all diamond-shaped sheet aluminum signs 1500 mm and larger shall be framed unless otherwise specified. Frames shall be constructed in accordance with "Framing Details for Sheet Aluminum Signs", Sheets 1 through 4 and Table 1 on Sheet 5, as published by Caltrans. Sign panel fastening hardware shall be commercial quality.

12-3.08.M Removal of Permanent Traffic Control Signs

For existing permanent traffic control signs that are to be removed and not relocated, the Contractor shall remove all sign faces, hardware, and posts. The Contractor shall deliver the removed items to the City or County facility designated in the Special Provisions. The Contractor shall replace any sign faces, hardware, or posts damaged during removal and transport.

12-3.08.N Regulatory Sign Placement and Removal

The temporary relocation of each "STOP" or other regulatory traffic sign shall be done immediately upon its removal, and to a location as close as possible to the original position of sign or as directed by the Owner.

Stop signs and other traffic control signs and facilities necessary for the control of traffic during the project shall be maintained in their original positions, as noted in the Owner’s inventory, except for temporary repositioning necessitated by the Work. No signs may be moved from their original positions without prior written approval of the Owner. Temporary sign positions must be equivalent to the original positions. The standard sign position is seven to ten feet (7' to 10') from the edge of pavement. Stop signs should not be located more than thirty feet (30') from the painted roadway centerline, unless they are supplemental signs, more than forty feet (40') in advance of the limit line, or more than twenty feet (20') beyond the limit line. When the intersection approach width for one direction of traffic is thirty feet (30') or more, the Owner may require that stop signs be erected on both the left and right sides of that approach.

Temporary traffic control signs may be mounted on portable supports only during working hours when the Contractor's workers are available to maintain the signs in proper position at all times. The position and mounting devices for temporary signs shall be subject to the approval of the Owner.

Outside of working hours, and at all other times when the Contractor is not available to maintain signs on portable temporary supports, all temporary stop signs and other traffic control signs must be mounted on their original or equivalent posts. The posts must be set in the ground with compacted backfill to a depth of at least thirty-two inches (32") in the same way that permanent signs are installed. The bottom of the sign face must be at least five feet (5') but not more than seven feet (7') above the edge of traveled way, and must be seven feet (7') above the edge of traveled way if subject to pedestrian traffic adjacent to the post. When temporary sign post holes must be dug in completed pavement surfaces, the Owner shall review the temporary position with respect to the proper final position.

12-3.08.O Sign Posts

When the Work will change traffic patterns, require relocation, removal, or installation of permanent regulatory traffic control and other signs, the Contractor shall relocate, remove, or install sign posts as shown on the Plans, or as directed by the Owner.
SECTION SP – SPECIAL PROVISIONS
SPECIAL PROVISIONS

SP-2-0 LOCATION OF WORK

The project site is located on the east bank of the Feather River and south bank of the Yuba River, which are within Reclamation District No. 784 (RD 784), south of Marysville, California.

SP-2-3 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK

The Contractor shall satisfy himself or herself concerning the nature and location of the work; the general and local conditions, particularly those affecting transportation, disposal, handling and storage facilities; availability of labor, water, power, communications, and roads; climatic conditions and seasons; physical conditions at the work sites and project areas as a whole; environmental resource issues in the project area and vicinity; job-site topography and ground conditions; permits, equipment, and facilities needed preliminary to, and during, work prosecution; and all other matters which can in any way affect the work, including the cost thereof. Failure of the Contractor to become acquainted with all available information regarding any applicable conditions will not relieve the Contractor from the responsibility for properly estimating either the difficulties or the costs of successfully performing the work.

In addition, before construction or as construction proceeds, the Contractor will analyze samples of borrow material used for earthwork construction. The analysis will test for contaminant residues (such as trace metals, organochlorine pesticides, polychlorinated biphenyls) to ensure that adverse concentrations are not exceeded. Samples will be collected at appropriate reference sites to identify whether the borrow soil contains elevated contaminant concentrations. The analytical information will be reported to the Engineer prior to removal of material from the borrow site, in a manner appropriate for transmittal to the Regional Water Quality Control Board and other regulatory agencies.

SP-2-14 REJECTION OF BIDS

Bidders are cautioned not to unbalance their Bids. Owner reserves the right to reject any Bids that appear unbalanced, in the sole judgment of the Owner.

SP-4-3 CONFORMANCE WITH CODES AND STANDARDS

In Addition to the codes and standards specified under Section 4-3 of the General Provisions, work shall be in full compliance with Title 23 “Waters” of the California Code of Regulations.

SP-4-11.01 RIGHT-OF-WAY AND TEMPORARY CONSTRUCTION EASEMENTS

The right-of-way and temporary construction easements for the facilities to be constructed under the Contract will be provided by the Owner as shown on the Drawings. The right-of-way and temporary easements are shown on the Drawings. Nothing contained in the Contract shall be interpreted as giving the Contractor exclusive occupancy of the territory provided. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the Engineer to the Contractor so desiring, to the extent, amount, and in the manner and at the times permitted. No such decision as to the method or time of conducting the work or the use of territory shall be made the basis of any claim for delay or damage.

The Contractor is responsible for obtaining land rights for easements to areas to be used for the Contractor’s convenience. The Contractor shall not work outside of the work limits shown in the construction documents without first obtaining written approval from the appropriate landowner(s). Such written permission shall be approved by TRLIA prior to the Contractor accessing the property outside the work limits.
The Contractor shall become familiar with and abide by mitigation requirements regarding preconstruction environmental clearances for staging areas, access roads, and other locations for construction activities. These measures also apply to areas where the Contractor obtains lands rights or easements for the Contractor’s convenience. Owner shall be given at least four weeks prior to use of these locations to perform needed environmental clearance activities. Any delays resulting from the need for environmental clearances will not be the responsibility of the Owner and the Contractor will not be granted any extension of time for such delays.

All costs associated with access to areas outside the designated work limits, including any compensation to the landowner(s), property restoration, environmental protection, and compliance with all applicable permits, shall be the responsibility of the Contractor.

SP-4-11.02 CONTRACTOR’S USE OF PREMISES

The Owner has acquired or will acquire access to land at the locations shown on the Drawings for the Contractor’s use in staging construction and for temporary facilities in accordance with Section 7 of the General Provisions. The limits of disturbance for construction staging and carrying out the Work are shown on the Drawings. All construction equipment, temporary facilities, staging, materials handling and storage, and temporary rerouting of pedestrians shall be confined to the limits of work indicated on the Drawings and street rights-of-way, as permitted by the Engineer. Premises used shall be maintained and cleaned up in accordance with Section 7 of the General Provisions. Contractor shall restore premises used to preconstruction condition or better before substantial completion of Work is granted.

As part of the Work, the Contractor may be granted use of sections of levee toe access corridors, existing levee access ramps, or sections of the levee crown to access the work areas or for use as haul roads. Any access ramps, levee crown roadway, or toe access corridor used for such purposes will be maintained in a manner prescribed by authorized representatives from the Department of Water Resources, RD 784, the U.S. Army Corps of Engineers, or any other agency responsible for maintenance of the levee system. At the completion of use of these facilities the Contractor shall restore these facilities to their preconstruction condition or better.

To facilitate access to and to perform certain aspects of the work, the Contractor may be required to remove fencing, gates, and signs. Before substantial completion of the Work is granted, the Contractor shall replace all fencing, gates, and signs in kind and at the original locations or as directed by the Engineer.


Three Rivers Levee Improvement Authority, RD 784, and DWR personnel are responsible for inspecting and maintaining the existing levee within the project area. The Contractor shall conduct the work so that these agencies are not prevented from access to, and passage along, the existing levees at all times for normal and emergency purposes. The U.S. Army Corps of Engineers, the Central Valley Flood Protection Board, the U.S. Fish and Wildlife Service, and the State Department of Fish and Wildlife have jurisdictional authority over the work as defined in the respective sections on permits and agreements. The Contractor shall allow these agencies, and other jurisdictional public agencies, unrestricted access to the project site, and shall provide safe access to the project site consistent with the safety requirements of OSHA and other applicable entities.

SP-5-7 EQUIPMENT AND MATERIALS FURNISHED BY THE CONTRACTOR

The Contractor shall furnish all equipment, materials, tools, supplies and manufactured articles of all kinds whatsoever necessary or required for the completion of the work in accordance with the Contract,
except for possible permission to utilize any acceptable materials that may be found on the site, and as may be herein specified. All tools and equipment that are the Contractor's property shall be clearly marked in a distinguishing manner such as paint, etc. to ease inspection when they are removed from the site. The Contractor shall take the necessary precautions to secure tools and equipment from theft while on site. The Owner assumes no responsibility for lost, vandalized, or stolen equipment belonging to the Contractor, their subcontractors, or their employees.

**SP-5-9.01 OWNER / ENGINEER FURNISHED SURVEYS**

The Owner will show, to the best of its knowledge, the location and character of survey monuments within the construction area on the Drawings. Lost, broken or stolen monuments shall be replaced by the Contractor at the Contractor's expense, except where removal of the monuments is part of required project excavations.

Owner's surveyor will stake property line and establish fence line prior to commencement of work. Two sets of property line stakes will be provided, one set prior to clearing and a second set prior to installation of fencing.

**SP-5-9.03 CONTRACTOR SURVEYS AND TOLERANCES**

The Contractor shall be responsible for surveying and staking in the field, the right-of-way and construction easements. The Contractor shall be responsible for maintaining the staking until completion of the work.

The Engineer will establish the survey monuments and elevation bench marks shown on the Drawings. These monuments and bench marks will be provided at the beginning of the work. From this information the Contractor shall establish the baseline control points for horizontal and vertical control and make all additional detail surveys and measurements necessary for the construction of the work as dimensioned on the Drawings. The Contractor shall be responsible for the preservation of the monuments and the elevation bench marks, except where removal of the monuments is part of required project excavations. If the Contractor requests the Owner to replace the monuments and elevation bench marks damaged or destroyed during the course of the work, they will be replaced at the Contractor's expense.

Surveys for measurement and payment purposes will be performed by the Contractor and spot checked in the field by the Engineer. The Contractor shall provide a minimum of 48-hour notice to the Engineer prior to the date the Engineer's survey check is requested. The Contractor shall provide unrestricted access to the areas to be surveyed and shall allow three working days for the Engineer to perform the surveys.

Cross sections for measurement of excavation and embankment quantities shall meet the following requirements:

- Cross sections shall be performed at one hundred (100) foot maximum intervals before and after foundation stripping.
- Cross sections shall be performed at the same one hundred (100) foot maximum interval stations after placement of fill.
- Cross sections shall include the entire landside levee side slope to the property line east of the levee.
- Additional cross sections shall be provided, as required, to detail construction of berms, ramps, miscellaneous filling and other grade changes.
The location of the cross sections for all excavations shall be at the same stations as shown in the cross sections included in the Drawings. The cross sections shall be tied into the baseline, and a plot of the sections (1 inch = 10 feet vertical scale, 1 inch = 10 feet horizontal scale) shall be furnished to the Engineer. In addition to the plots, the Contractor shall provide electronic data files of the quantity surveys in a format acceptable to the Engineer.

These surveys shall be utilized to confirm that the fill was constructed to the grade tolerances specified below or as otherwise specified in the Technical Provisions:

- Preparatory grades: -0.1, +0 foot vertically, and +/-0.1 foot in horizontal dimension.
- Finished grades: -0, +0.1 foot vertically, and +/-0.1 foot in horizontal dimension, and all minimum slopes and minimum depths shall be achieved.
- Piping: -0, +0.1 foot vertically, and +/-0.1 foot in horizontal dimension, and all minimum slopes shall be achieved. In addition, in all cases the piping shall have the minimum cover shown on the Drawings.
- Concrete: As required by Section 03300.

The Contractor shall have all surveys carried out by a surveyor licensed to practice land surveying in the State of California. The Engineer will spot-check the Contractor's surveys. Any discrepancies between the Contractor's survey and the Engineer's spot-check will be resolved between the Contractor and the Engineer. The Engineer will make the final determination in the event a satisfactory resolution is not obtained.

**SP-6-10  PERMITS AND LICENSES**

The Owner has completed or will complete the following environmental compliance processes and has obtained or will obtain the following permits, agreements, and rights for the work.

A. Encroachment permits from The Central Valley Flood Protection Board (see Attachment 2).
B. All permanent rights-of-way required for the work
C. California Environmental Quality Act (CEQA) Compliance
D. National Environmental Protection Act (NEPA) Compliance
E. Endangered Species Act Incidental Take Authorization
F. Certain temporary rights-of-way and land use agreements for construction of yard areas, haul roads, access and slope construction, as delineated on the Drawings and subject to special restrictions and conditions.
G. Phase I Environmental Site Assessment
H. Confirmation from agencies that certain permits are not required (e.g., Clean Water Act Section 404 and 401 Permits) if construction is completed consistent with the Drawings and specifications.
I. UPRR Contractor's Right of Entry permit, if needed

The Central Valley Flood Protection Board encroachment permits are attached to these Special Provisions. The Contractor may be required to obtain duplicate permits or be a signatory on the Owner obtained permits.
The obtainment of additional property, easements, use permits or agreements, environmental permits or requirements, and other rights or approvals required for the convenience of the Contractor shall be the responsibility of the Contractor. Any delays resulting from the lack of these additional permits or approvals will not be the responsibility of the Owner and the Contractor will not be granted any extension of time for such delays.

The Contractor shall be responsible for complying with all conditions of the permits and right-of-way agreements obtained for the project.

**SP-6-11.01 FIRE PROTECTION AND SUPPRESSION**

The Contractor shall develop and implement a fire management and control plan. The plan shall include fire precaution, pre-suppression, and suppression measures consistent with the policies and standards of Yuba County and as required by other Sections of these Specifications.

The Contractor shall take all reasonable precautions to prevent fires in the work area or around the general vicinity of the work. The Contractor shall be responsible for all damage from fires due directly or indirectly to the Contractor’s own activities or subcontractors or their employees. The Contractor shall maintain all work areas free from unnecessary combustibles and obstructions to fire-fighting access and shall maintain at the site of the work all such fire-fighting or prevention tools and equipment as are stipulated by the agencies having jurisdiction over the site.

**SP-6-11.02 RAILROAD SAFETY PROCEDURES**

The project will require the Contractor and its employees to work within 20 feet of live tracks and to implement the following safety procedures:

- Always be on the alert for moving equipment while working near any railroad tracks or facilities.
- Do not step or walk on the top of the rail, frog, switches, guard rails, or other track components.
- In passing around ends of standing cars, engines, railroad machinery, and other on-track equipment, leave at least one rail car length (50 feet) between yourself and the end of the equipment.
- Always avoid walking or standing on track.
- When it is necessary to walk or work on track, always keep a sharp lookout in both directions for approaching trains.
- Before stepping or crossing tracks, look in both directions first. The same is true when walking around machinery and equipment on and or near tracks.
- Do not sit, lie under, or cross between cars, except as required in performance of your duty, and only when track and equipment are under proper protection.
- In multiple track territory, do not stand on one track while a train is passing on another.

**SP-6-12 FARMING ACTIVITIES**

Active farming activities will occur within and adjacent to the project site during the course of construction. The Contractor shall provide access across the work site so that farming activities may continue to occur and shall coordinate with the farmer’s representative to schedule activities and ensure that disruption to farming activities is minimized. Reasonable delays for authorized through traffic, up to 5 minutes at a time, will be allowed.

Contractor shall notify Engineer at least one week in advance of the need to close Island Ave for culvert installation. During road closure, Contractor shall coordinate with farmers to allow access to the waterside.
of Island Ave via the Riverside Blvd levee ramp and levee crown patrol road. Under no circumstances shall Island Ave be closed for more than 5 consecutive and total calendar days.

**SP-6-14 TRAFFIC SAFETY PLAN**

The Contractor shall develop plans for traffic safety assurance for the county roadways in the vicinity of the project area. The plan shall be submitted to Yuba County Public Works Department for approval before the initiation of construction-related activity that could adversely affect traffic on local roadways. The plan shall include but not be limited to descriptions of the following:

- posting warnings about the potential presence of slow-moving vehicles;
- using traffic control personnel when appropriate;
- scheduling truck trips outside of peak morning and evening traffic periods to the extent feasible;
- placing and maintaining barriers and installing traffic control devices necessary for vehicle and pedestrian safety, as specified in Caltrans’ Traffic Controls for Construction and Maintenance Works Zones and in accordance with Yuba County requirements; and
- maintaining routes for passage of emergency response vehicles through roadways affected by construction activities.

The Contractor shall train construction personnel in appropriate safety measures as described in the plan, and shall implement the plan as approved by Yuba County.

All operations shall limit or expeditiously remove the accumulation of project-generated mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. The construction contractor shall sweep the paved roadways (water sweeper with reclaimed water recommended) at the end of each day if substantial volumes of soil material have been carried onto adjacent paved, public roads from the project sites.

**SP-6-16.01 UTILITIES & IRRIGATION PIPING**

The Contractor shall comply with the following general requirements:

- Existing telephone (AT&T), cable television (Comcast), and power and gas (PG&E) utilities shall be protected from damage resulting from the Contractor's operations. The Contractor shall take all necessary precautions to protect all overhead lines, utility poles, and buried communication, electrical, and gas lines from damage.
- Any damage resulting from the Contractor's operations shall be repaired by the Contractor, or by the utility company at Contractor's request, and returned to the condition which existed prior to the damage, and to the satisfaction of the Engineer and the utility company, at no additional cost to the Owner.
- The Owner may deduct from payments otherwise due to the Contractor, the estimated cost of repairing any damage created by the Contractor's operation, until such time the Contractor makes the repairs to the Engineer's satisfaction. If repair work is not completed as expeditiously as possible, the Owner, at its option, may contract to have the repair work completed outside of contract with the cost thereof deducted from the contract.

The Contractor shall comply with the following requirements regarding utility power:

- During construction and disconnection of utility PG&E power, the Contractor shall be responsible for temporary electric service to existing users. During construction, the Contractor shall provide and make arrangements for temporary electric service for all purposes of power and lighting as required by existing users, and shall maintain such service until utility PG&E power is connected and restored.
The Contractor shall maintain and pay for all temporary power used during construction including, but not limited to, costs to operate portable generators for existing users.

The Contractor shall comply with the following requirements regarding existing water and wastewater pipelines crossing the work area:

- The Contractor shall provide access to and coordinate with the owners of the existing pipelines to keep them informed of Contractor’s operations and ensure that operation of the pipelines is not interrupted. Any outages of existing pipelines shall require prior written approval by the owners of the pipelines.

**SP-6-16.02 UPRR COORDINATION AND RIGHT OF ENTRY (Owner Option)**

Contractor shall comply with the Union Pacific Railroad Company (UPRR) Right of Entry Agreement and endorse the Contractor’s Endorsement.

The Right of Entry Agreement grants the Licensee the right to enter upon and have ingress to and egress from areas of project work located with the UPRR right-of-way, subject to terms and conditions contained in the agreement. Owner is applying for and expects to receive said agreement. Contractor shall be responsible for transferring licensee information from Owner to Contractor with UPRR, and for providing proof of transfer to Owner. Additional information regarding Contractor’s Endorsement (licensee transfer) may be obtained by contacting UPRR’s Real Estate Manager for Yuba County at http://www.uprr.com.

Contractor is responsible for abiding by the terms and conditions of the Right of Entry Agreement, as the Licensee. This includes, but is not limited to, additional insurance requirements and increased limits of liability, and naming UPRR as additional insured on all Insurance Certificates submitted for the Project.

Railroad Protective Liability Insurance is required by UPRR when a project includes work within UPRR right-of-way. The Contractor, at its own sole cost and expense, shall procure, maintain, and keep in force at all times during the term of the Contract, Railroad Protective Liability Insurance. The limits of Railroad Protective Liability Insurance shall not be less than the amount determined by UPRR and stated in the Right of Entry Agreement. Contractor may obtain Railroad Protective Liability Insurance through any insurance carrier, or in some instances to be determined by UPRR, directly through UPRR’s Insurance Department at (402)-544-2215.

The Right of Entry Agreement license fee will be paid by Owner. Any additional UPRR charges incurred or UPRR coordination necessary during the course of the project shall be borne by Contractor.

**SP-7-3 PROJECT COORDINATION MEETINGS**

Contractor shall attend weekly coordination meetings held by the Engineer to review Contractor’s progress on the project and provide a forum to discuss and resolve various issues which may arise during the progress of the work. With reference to Section 4 of the General Provisions, requests for clarification of Contract Documents, or other requests for information regarding the progress of the work, shall be submitted in writing to the Engineer, on a suitable form, to be provided by the Engineer.

**SP-7-7 FLOOD EMERGENCY**

In the event of a flood emergency requiring action by the jurisdictional flood control agencies prior to completion of the work, the Engineer shall have the right to suspend the work until the emergency is resolved. Such suspension includes the right of the Owner to take over the project to conduct flood protection activities.

**SP-7-8.01 ALLOWABLE TIMES AND HOURS OF WORK**

Work shall conform to Section 7 of the General Provisions, except as specified herein.
Construction activities, including equipment warm-up and equipment maintenance and servicing shall be limited to the hours of 6:00 a.m. to 7:00 p.m., Monday through Saturday except that construction activities within 500 feet of residential structures and noise-sensitive land use shall meet the requirements of SP-10-6 Noise Monitoring and Control Program. Contractor shall not work on Sundays unless he obtains prior written permission from the Engineer.

**SP-7-9 TEMPORARY RAMPS**

In addition to the existing earthen ramps shown on the Drawings, the Contractor may construct temporary ramps to access the work for the Contractor's convenience. The Contractor shall obtain Engineer approval for the location of these temporary ramps prior to construction of the ramps. The Contractor shall be responsible for obtaining any additional property, easements, use permits or agreements, environmental permits, and other rights or approvals required for such temporary ramps. Upon completion of the project, temporary ramps shall be removed, and the material disposed of by the Contractor. Unless otherwise noted, the ground surface in the area of each temporary ramp and the embankment slopes shall be restored to the existing lines and grades, as shown on the Drawings.

**SP-7-12.02 COMPENSATION FOR UNAVOIDABLE DELAYS**

Delays beyond the control of the Contractor due to Owner acts, delays in permitting processes undertaken by the Owner, or delays in real estate acquisition or easement processes undertaken by the Owner, shall be compensated as follows:

- Delays of short duration for which demobilization and remobilization are not practical shall be negotiated by TRLIA and the Contractor, but in any case, shall not exceed $4,000 (Four Thousand Dollars) per Calendar Day. This amount includes all costs for stand-by labor, loss of efficiency or productivity, mobilization or de-mobilization, field and home office overhead, stand-by costs for equipment, lost opportunity cost, lost revenue or profit, increased financing, or any other time related cost.
- For longer delays and at the discretion of the Owner, the Contractor may be instructed to demobilize and remobilize at a later date and will be compensated at the unit rate in the bid schedule.

**SP-7-15 START TIME AND TIME OF COMPLETION**

In general, the Contractor may start site work immediately following Notice to Proceed and must complete the Work in accordance with the following milestones.

A. Completion of All Earthwork Activities by September 6, 2013
B. Completion of All Fencing Installation by September 20, 2013
C. Erosion Control Seeding of All Disturbed Areas by October 4, 2013
D. Completion of All Construction and Site Cleanup by October 11, 2013
E. Provide As-Built Documents by October 18, 2013

No work shall be performed in the floodway or on the levee embankment between November 1 and April 15 without prior approval from the Central Valley Flood Protection Board. In addition, the floodway shall be free of material stockpiles, temporary buildings, equipment, cleared brush and trees, or any other materials related to construction between November 1 and April 15.

**SP-8-7.01 RETENTION**

On any partial payment made after 95% of the total project work has been completed, the Owner may reduce the amount withheld from payment to such lesser amount as the Owner determines is adequate.
Security for the fulfillment of the work and other requirements of the Contract, but in no event will that amount be reduced to less than 125 percent of the estimated value of the total project work yet to be completed as determined by the Engineer. The reduction will only be made upon the written request of the Contractor and shall be approved in writing by the Surety on the Performance Bond and by the Surety on the Payment Bond. The approval of the sureties shall be submitted to the Engineer.

SP-8-10 LIQUIDATED DAMAGES FOR DELAY

As set forth in Section 8 of the General Provisions, the liquidated damages for this contract shall be the sum of Four Thousand Dollars ($4,000) per Calendar Day. These apply to milestone dates given in SP-07-15 above.

SP-10-1 GENERAL DUST CONTROL

Refer to Section 6 and Section 10 of the General Provisions. During the performance of the work, the Contractor shall assume all responsibility for dust control and shall furnish all labor, equipment and means required, and shall carry out proper and efficient measures wherever and as often as necessary to prevent the construction operations from producing dust in amounts harmful to persons, damaging to property, or causing a nuisance to roadway travel or persons living nearby or occupying buildings in the vicinity of the work. Dust control will be strictly enforced with particular emphasis on work areas adjacent to residential properties, Island Avenue, Feather River Boulevard, Riverside Avenue, and agricultural land. Responsibility for any injury to persons or damage to property, crops or orchards from dust caused by the Contractor's operations shall be borne by the Contractor in accordance with Section 6 of the General Provisions. The cost of water for dust control shall be included in prices bid for other items of work, and no additional compensation will be made therefore. The loads of vehicles or equipment transporting earthen materials or other materials to and from off-site locations shall be covered with tarpaulins.

The curtailment of the construction activities as a result of the inadequate dust control measures or the lack of using tarpaulins will not be considered an unavoidable delay.

SP-10-2 FUGITIVE DUST CONTROL

The Contractor shall implement the following measures to control fugitive dust emissions, as required by the Feather River Air Quality Management District (FRAQMD):

- All grading operations shall be suspended when winds exceed 20 miles per hour (mph) or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- Construction sites shall be watered as directed by the Engineer or FRAQMD, and as necessary to prevent fugitive dust violations.
- An operational water truck shall be on site at all times. Water shall be applied to control dust as needed to prevent visible emissions violations and offsite dust impacts.
- Onsite dirt piles or other stockpiled particulate matter shall be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. Use of approved non-toxic soil stabilizers according to manufacturers’ specifications shall be incorporated into all inactive construction areas.
- All transfer processes involving a freefall of soil or other particulate matter shall be operated in a manner that minimizes the freefall distance and fugitive dust emissions.
- Approved chemical soil stabilizers shall be applied to all inactive construction areas (previously graded areas that remain inactive for 96 hours), including unpaved roads and employee/equipment parking areas, according to the manufacturers’ specifications.
To prevent track-out, wheel washers shall be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed before each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out.

Paved streets shall be swept frequently (water sweeper with reclaimed water recommended, or wet broom) if soil material has been carried from the project site onto adjacent paved public thoroughfares.

Traffic control shall be provided as needed during all phases of construction to improve traffic flow, as deemed appropriate by Yuba County and/or Caltrans, and to reduce vehicle dust emissions.

Traffic speeds shall be reduced on all unpaved surfaces to 15 mph or less, and unnecessary vehicle traffic will be reduced by restricting access. Appropriate training, onsite enforcement, and signage shall be provided.

Where appropriate, groundcover shall be reestablished on the construction site as soon as possible and before final occupancy through seeding and watering.

Open burning is a source of fugitive gas and particulate emissions and shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (trash, demolition debris, etc.) may be conducted at the project site. Vegetative wastes shall be chipped and delivered to waste energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials off site for disposal by open burning.

Construction activities shall minimize disruption to traffic flow during peak hours to the greatest extent feasible.

A truck hauling dirt, sand, soil, or other loose material shall be covered or maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. This provision shall be enforced by local enforcement agencies.

In addition, the Contractor shall observe the following measures to reduce emissions to the extent practicable:

- Ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.
- Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0 ("Visible Emissions") limitations (40% opacity or Ringelmann 2.0). Operators of vehicles and equipment found to exceed opacity limits shall take action to repair the equipment within 72 hours or remove the equipment from service. Failure to comply may result in a Notice of Violation.
- Limit vehicle and equipment idling times to 5 minutes.
- Use existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.
- Develop and implement a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.
- Portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, may require ARB Portable Equipment Registration with the state or a local district permit. The owner/operator shall be responsible for arranging appropriate consultations with ARB or the District [FRAQMD] to determine registration and permitting requirements prior to equipment operation at the site.
The Owner-prepared Storm Water Pollution Prevention plan is included in these Specifications as Information for Bidders

**SP-10-6 NOISE MONITORING AND CONTROL PROGRAM**

The Contractor shall employ noise-reducing construction practices. Measures that shall be used to limit noise include, but are not limited to the following:

- To the extent practicable, construction activities shall be limited to the hours of 7 a.m. to 7 p.m. when operations occur within 500 feet of a residential or other noise-sensitive land use. The Owner and/or Engineer shall make the final decision on designation of noise-sensitive land uses. Decisions as to whether nighttime construction is needed within 500 feet of residential or other noise-sensitive land uses shall be approved by the Owner and/or Engineer and shall consider only the need to complete project activities before the beginning of the flood season and the associated need to maintain human safety and the integrity of the flood control system.

- All construction equipment shall be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications.

- Provide written notification to TRLIA at least 48 hours before starting construction within 500 feet of residential structures or noise-sensitive land use. Notification shall include potentially affected receptors and identifying the type, duration, and frequency of construction operations. Notification materials shall identify a mechanism for residents to register complaints with TRLIA and Yuba County (the agency responsible for enforcement of the Yuba County noise ordinance) if construction noise levels are overly intrusive or construction occurs outside the permitted hours.

**SP-10-7 CONTAMINATED OR HAZARDOUS MATERIALS OR ENVIRONMENTS**

- There is the potential for encountering unforeseen contamination during excavation activities along the landside of the levee in Segment 3. Contractor shall monitor all construction activities to observe for evidence of potential soil contamination, including soil discoloration, noxious odors, buried or burnt debris. If contamination is discovered, the contractor shall stop work, notify the Engineer, and develop and implement a plan to sample and analyze samples for hazardous substances. Any discovered hazardous substances shall be removed, handled, and disposed of in accordance with Occupational Safety and Health Administration 29 CFR 1910.120 and California Occupational Safety and Health Administration. Only workers experienced in HAZWOPER methods shall identify, screen, handle, and dispose of contaminated materials, provide oversights, and ensure public safety in these areas.

- Prior to any demolition or removal of a structure known or suspected to have been constructed prior to 1985, an asbestos and lead-based paint survey shall be performed. If asbestos-containing materials are determined to be present, the materials shall be abated by a certified asbestos abatement contractor in accordance with the existing regulations and notification requirements. If lead-based paint is identified, then Federal and state construction worker health and safety regulations shall be followed during renovation or demolition activities. If loose or peeling lead-based paint is identified, it shall be removed by a qualified lead abatement contractor and disposed of in accordance with existing hazardous waste regulations. All Universal Waste potential and identified mercury containing light tubes and mercury thermostat switches, batteries and other universal wastes shall be removed and recycled or disposed of in accordance with the guidelines established by the DTSC Universal Waste Rule, as stated in 22 California Code of Regulations Sections 66261.9 and 66273.1 through 66273.90. In addition, if refrigerant appliances are encountered and require disposal, Contractor shall obtain a Certified Appliance
Recycler under Section 608 of the Clean Air Act to remove or extract all refrigerant from appliances. The Certified Appliance Recycler shall perform all work in accordance with AB 1760.

SP-10-12 CULTURAL AND PALEONTOLOGICAL RESOURCES

In accordance with Section 10 of the General Provisions, cultural (archeological) resources shall include historic and cultural artifacts, or paleontological resources. Archaeological remains encompass a wide range of prehistoric and historic objects that have been subject to human use or modification or are the result of human manufacture. These objects include whole and fragmentary artifacts, such as stone, bone, or shell tools and ornaments; glass or ceramic bottles, jars, and dishes; metal cans or tools; and animal bone. Whole and partial features, such as fire pits, mining or irrigation ditches, and the remains of buildings are also considered cultural resources, as is human bone. Paleontological resources (fossils) are the remains or traces of prehistoric animals and plants.

The Contractor shall immediately halt construction activities if cultural or paleontological resources are uncovered. The Owner will retain an archeologist or paleontologist to determine the significance of the resource and direct the Contractor accordingly.

The Contractor's project superintendent and key members of all major excavation, trenching, and grading operations for project construction shall be instructed to be alert for the possibility of destruction of buried cultural resource materials and paleontological resources. They shall be instructed to recognize signs of prehistoric use, and it will be their responsibility to report any such finds (or suspected finds) immediately, so damage to such resources may be prevented. Owner will provide for training of Contractor's personnel at a mutually agreeable time and prior to the performance of any earthwork.

In the event of the discovery of archaeological or paleontological remains, the Contractor shall stop excavation and other ground-disturbing activities in that area and within 100 feet of the discovery until a qualified archeologist or paleontologist can assess the significance of the find, and, if necessary, develop appropriate treatment measures. Until the resource can be assessed, the area shall be flagged or roped off, and any earthmoving activities discontinued in that area.

If human remains of Native American origin are discovered during ground-disturbing activities, it is necessary to comply with state laws relating to the disposition of Native American burials, which falls within the jurisdiction of the Native American Heritage Commission (NAHC) (PRC 5097). If human remains of any origin are discovered or recognized in any area on the project site, the Contractor shall stop further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

1. The county coroner has been informed and has determined that no investigation of the cause of death is required; and
2. If the remains are of Native American origin:
   a. The descendants from the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98, or NAHC was unable to identify a descendant, or the descendant failed to make a recommendation within 48 hours after being notified by the NAHC and being provided access by the landowner to inspect the site; and
   b. Authorization has been granted from the archeologist or paleontologist retained by the Owner.

According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that excavation be stopped in the vicinity of discovered human remains until the
coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC.

**SP-10-13.1 CONSTRUCTION PROTOCOLS FOR TREES AND RIPARIAN AND WETLAND HABITAT**

In addition to other requirements for the protection of trees and riparian and wetland habitats, the Contractor shall implement the protective measures listed below and any additional measures identified in permits or agency agreements applicable to the work.

- Except for those trees and vegetation specifically identified for removal, the Contractor shall protect trees and vegetation both on the project site and outside the construction area from damage by construction activities.
- Protective measures shall include installing protective fencing. Protective fencing shall be installed along the edge of the construction area (including temporary and permanent access roads) where construction will occur within 15 feet of the drip line of a tree 6 inches or more in diameter at 4.5 feet above the ground (as determined by a qualified biologist or arborist).
- Protective fencing shall also be installed around riparian and wetland habitats to be preserved. No activity shall occur within these fenced areas.
- The Contractor shall provide signs along the protective fencing at a maximum spacing of one sign per 100 feet of fencing stating that the area is environmentally sensitive and that no construction or other operations may occur beyond the fencing.
- All fueling, cleaning, and maintenance of vehicles and other equipment shall be restricted to designated areas at least 250 feet from any wetland habitats. The Contractor shall ensure contamination of wetland habitats does not occur during such operations.
- The Contractor shall retain a certified arborist to perform any necessary pruning of trees along the project site and construction area. Pruning shall be conducting in accordance with International Society of Arboriculture (ISA) standards.

**SP-10-14.1 CONSTRUCTION PROTOCOLS FOR ELDERBERRY SHRUBS**

Elderberry shrubs are located adjacent to the project site. The elderberry shrub is the host plant of the Valley Elderberry Longhorn Beetle (VELB), a federally listed threatened species. The U.S. Fish and Wildlife Service has established protective measures for elderberry shrubs that occur in the vicinity of construction activities (U.S. Fish and Wildlife Service 1999), as presented below. If working within the vicinity of elderberry shrubs, the Contractor shall implement the measures listed below to avoid and minimize impacts to the VELB resulting from project activities.

- The Contractor, through coordination with the Owner’s biologist, shall ensure to the extent feasible and practicable that the footprint of project features and construction zones, staging areas, and access routes are designed such that no ground disturbance would occur within 100 feet of an elderberry shrub with stems measuring 1 inch in diameter at ground level.
- The Contractor shall water roadways and disturbed areas within 100 feet of elderberry shrubs at least twice a day to minimize dust emissions.

**SP-10-14.2 CONSTRUCTION PROTOCOLS FOR SWAINSON’S HAWK**
The Contractor shall comply with the following provisions for avoiding and minimizing impacts to Swainson’s Hawks:

- Because project construction activity would occur during the Swainson's hawk breeding season (March 1 to September 15), preconstruction surveys must be conducted by a qualified biologist retained by the Owner. Contractor shall coordinate with Owner to ensure that the required surveys are performed in the required intervals, as follows. The biologist shall conduct preconstruction surveys to identify active nests within one-half mile of the proposed levee construction and borrow area. Because of the mostly linear nature of the project construction, preconstruction surveys may be phased to accommodate construction activities; suitable nesting habitat shall be surveyed only when construction activities would encroach within one-half mile of unsurveyed areas. Surveys shall be conducted no less than 14 days and no more than 30 days before construction activities may encroach within one-half mile of unsurveyed areas.
- If an active nest is identified within one-half mile, Contractor shall immediately notify the Owner and an appropriate buffer shall be established to avoid impacts. The appropriate size and shape of the buffers shall be determined by a qualified biologist in conjunction with CDFW and may vary, depending on the nest location, nest stage, and construction activity. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active. Monitoring of the nest by a qualified biologist may be required if the activity could adversely affect the nest.

**SP-10-14.3 CONSTRUCTION PROTOCOLS FOR OTHER NESTING RAPTORS AND MIGRATORY BIRDS**

The Contractor shall comply with the following provisions for avoiding and minimizing impacts to other nesting raptors:

- Because project construction activity would occur during the typical avian breeding season (February 15 to September 15), preconstruction surveys must be conducted by a qualified biologist retained by the Owner within 2 weeks prior to commencement of construction to determine presence/absence of raptor and migratory bird nests. Contractor shall coordinate with Owner to ensure that the required surveys are performed. The biologist shall conduct preconstruction surveys to identify active nests within 500 feet of the planned construction areas (including staging and borrow areas). If no active nests are found, no further mitigation shall be required.
- If an active nest is found, Contractor shall immediately notify the Owner and an appropriate buffer shall be established to avoid impacts. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active.

**SP-10-14.4 OTHER CONSTRUCTION PROTOCOLS FOR PROTECTING BIOLOGICAL RESOURCES**

The Contractor shall comply with the following general provisions for avoiding and minimizing impacts to biological resources:

- TRLIA’s biologist will identify boundaries of sensitive habitats, and the Contractor shall fence the areas with orange construction fencing. Erosion control fencing shall be placed at the edges of construction where the construction activities are upslope of aquatic habitats to prevent washing of sediments into these features. All fencing shall be installed prior to any construction activities beginning and shall be maintained throughout the construction period.
- A worker awareness training program for construction personnel will be conducted by TRLIA’s biologist before construction activities begin. The program will inform all construction personnel about the life history and status of special-status species and the possible penalties for not complying with these requirements.
The Contractor shall limit the number of access routes, number and size of staging areas, and total area of construction activity to the minimum necessary. Access routes and construction boundaries shall be clearly demarcated. Movement of heavy equipment to and from the project site shall be restricted to established roadways.

Stockpiling of construction materials, portable equipment, vehicles, and supplies shall be restricted to designated staging areas.

To eliminate an attraction to predators, all food-related trash items, such as wrappers, cans, bottles, and food scraps, shall be disposed of in closed containers. Revegetation shall occur on all areas temporarily disturbed during construction.

During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies shall be restricted to the designated construction staging areas.

Dirt roadways and disturbed areas within the project site shall be watered at least twice a day to minimize dust emissions.

All workers shall be informed of the importance of preventing spills of fuels and other potential contaminants and appropriate measures to take should a spill occur. Any spills or hazardous materials shall be cleaned up immediately and reported in post-construction compliance reports.

If the contractor damages sensitive biological resources (e.g., wetlands, elderberry shrubs, riparian habitat, raptor nests) without the prior approval of the Owner, Engineer, or Owner’s biologist, Contractor shall be responsible for all costs associated with notification of agencies of permit or regulatory violations, coordination with agencies to correct resource damage, any monetary fines associated with permit or regulatory violations, and mitigation actions required to correct and/or compensate for permit or regulatory violations.

**SP-10-14.5 CONSTRUCTION PROTOCOLS FOR WORKING WITH ADJACENT PROPERTY OWNERS**

The Contractor shall comply with the following general provisions for avoiding and minimizing impacts to adjacent property owners:

- Contractor is required to work with adjacent property owners and tenants to furnish temporary fencing where requested
- Contractor shall work with the Owner to provide 24 hour advance notice to adjacent land owners and tenants prior to commencing work

**SP-11-2 PRECONSTRUCTION VIDEO**

The preconstruction video may be submitted on CD or DVD in an acceptable electronic format in lieu of VHS tape.
DIVISION 1 – GENERAL REQUIREMENTS
PART 1 – GENERAL

1.1 WORK INCLUDED

The Phase 4 Feather River Levee Repair Project has been performed under multiple construction contracts. The subject contract is to be performed during 2013 and includes work improving the landside toe access corridor along a reach of Segment 3 of the Feather River left bank levee and a small portion of the Yuba River left bank levee and construction of a small erosion protection berm along a reach of Segment 1 of the Feather River left bank levee all in Reclamation District 784 (RD784).

1.2 TYPE OF CONTRACT

This Contract consists of Lump Sum and Unit Rate Bid Schedule Items.

1.5 CONTRACTOR'S USE OF THE PREMISES

In addition to requirements presented elsewhere on the Plans and in the Specifications, the Contractor shall adhere to the following requirements:

a. The Contractor shall have charge and care of, and bear the risk of damage to, the Project until its completion and final acceptance including any erosion caused by rain and rain runoff along the levee slopes, crown and work areas.

b. The Contractor shall not create or permit the continued existence of any nuisance in or about the job site.

c. The Contractor shall protect and not disturb existing facilities, or access thereto, which are not in the work area or are in the work area and can be avoided.

d. Materials and equipment shall be stored and protected, as recommended by the manufacturer or required by applicable codes and standards, to guarantee preservation of quality, appearance, and suitability for the Project. They shall be stored to facilitate inspection by TRLIA. Materials shall not be stored on the embankment slopes.

e. TRLIA will provide the lands, easements, and rights-of-way, or other right-to-enter and work on lands shown on the Plans. Nothing herein contained and nothing marked on the Plans, shall be interpreted as giving the Contractor exclusive occupancy of the lands, easements, or rights-of-way provided by TRLIA.

f. The work areas and the areas for the Contractor's use are shown on the Plans.

g. The Contractor shall be responsible for restoring, at its own expense, all disturbed storage and work areas to a condition similar to those existing prior to construction, except where other surfacing or treatment is required by the Plans or Specifications.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as described in the Contract Documents. If the Contractor performs any work contrary to such laws, ordinances, rules and regulations, it shall bear all cost arising therefrom.
1.3.1 Project Description

The work described in this Contract includes the furnishing of all labor, materials and equipment for the Project, except where stated, including the following general items of work:

**Pre-Construction and Site Preservation:**
- Permits and approvals - obtain all permits and approvals required to perform the Work except for those permits and approvals identified in the Contract Documents as being obtained by TRLIA.
- Quality Control Plan - preparation and implementation of a quality control plan.
- Health and Safety Plan - preparation and implementation of a health and safety plan for all of the Contractor's personnel involved in construction of the Work.
- Traffic Safety Plan - preparation and implementation of a traffic safety plan for the public roadways in the vicinity of the project area (including but not limited to Island Avenue, Feather River boulevard and Riverside Avenue) and for State Route (SR) 70.
- Temporary facilities - constructing, maintaining, and removing temporary facilities necessary to perform construction. Temporary facilities may include but not be limited to the following items:
  - Site access - construction of temporary access roads and improvement of existing roads as required to access areas of planned levee improvements.
  - Staging and lay-down areas - design and construction of the Contractor's staging and lay-down areas.
  - Contractor's site facilities including, parking facilities, security, fencing and utilities.
- Mobilization.
- Preserve and retain existing pavement areas (gravel, asphalt-concrete, and concrete), unless removal of pavement inside property line is required for proper drainage as directed by TRLIA.
- At TRLIA's direction, replace or repair all items designated to be protected that are damaged as a result of Contractor activities, to TRLIA's satisfaction and at no additional expense to TRLIA.

**Site Preparation, Clearing, Demolition, Site Protection**
- Perform erosion and sediment control and storm water pollution prevention, and comply with all environmental controls and requirements related to the Contractor's operations as specified in Project licenses and permits obtained by TRLIA, and as specified elsewhere in the Specifications. Work includes:
  - Developing a Storm Water Pollution Prevention Plan.
  - Implementing Best Management Practices to minimize erosion and pollution of storm water including but not limited to the erosion protection measures required by Special Provision SP-10-4.
- Dust and Emissions Control - preparation and implementation of NOx control plans, and compliance with the dust and emissions control requirements in the General and Special Provisions.
- Protection of Existing Areas and Facilities
  - Complying with the terms and conditions of all permits.
Implementation of environmental protection measures in compliance with the General and Special Provisions including protection of cultural resources and endangered species.

Constructing and maintaining temporary fencing and barriers to protect environmental exclusion areas, existing facilities, and private property security.

Surveying and photographing existing roads, levee patrol road, and staging areas that will be used by Contractor during construction. Topographic and photographic surveys shall be performed before any construction activities begin and again at the completion of construction.

Restoration of existing roads, levee patrol road, levee embankment and access ramps, staging areas and any other areas used during construction - All existing roads, levee sections, levee patrol roads, levee access ramps, staging areas, and other third-party property used during construction shall be restored to the pre-construction condition or better.

Revegetating all disturbed areas including areas disturbed along the toe access corridor and lower levee slope with specified levee seed mix.

Flag or stake and protect in place monitoring wells in toe access corridor and piezometer data logger conduits buried in levee slope.

Locate and protect in place the PG&E gas pipelines in Island Avenue and along the Yuba River left bank levee. Coordinate clearing, grubbing and excavation activities in the vicinity with PG&E.

Locate and protect all other utilities within the project site.

Protect structures designated to remain.

Protect levee embankment - excavations into the levee embankment slope, toe, or toe road shall not be allowed except for the specified stripping and tree root removal.

Remove and dispose of trees between property line and levee crest, grub roots, and backfill root removal depressions with compacted backfill. Backfill shall be Type 3 soil placed in 6-inch lifts and compacted to a minimum of 97 percent of maximum dry density per ASTM D698. The contractor may be required to grind tree stumps in certain locations along the property line to prevent the disturbance of improvements on private property.

Clear, remove and dispose of vegetation, including shrubs, bushes, vines, weeds, grass and landscape plantings.

Remove and dispose of all debris, including:

- piles of broken concrete and asphalt
- miscellaneous metal debris
- wood chippings and mulch
- structures
- wooden poles
- all other debris and garbage including possible artifacts from illegal activities.

Demolish and dispose of concrete slab on 5828 and 5834 Riverside Drive.

Perform an assessment of the structures for asbestos and lead paint prior to demolition.

Demolish and dispose of houses, sheds, structures, and other out buildings as shown on the Drawings.

Remove and dispose of abandoned cars, trucks, campers, etc. if any.

Remove and dispose of existing fence parallel to levee and side fencing extending to the property line.
Remove an abandoned utility pole on the waterside of the levee near the UPRR crossing.

Preserve and protect existing side fencing beyond property line unless designated to be removed. Install self-standing end post at terminal end of each side fence at property line.

Install temporary fencing along selected portions of the property line in coordination with TRLIA and landowners, as needed and if requested by landowner to contain domestic animals and/or maintain property enclosure during site activities.

Remove irrigation piping and seal and cap irrigation lines at property line.

Dispose of all items removed from the site at legal facilities located offsite.

Segment 3 Toe Access Corridor Improvements

Strip the top six inches of soil from all vegetated areas that are to receive fill. Remove the stripped material from the site and dispose legally.

Prepare and proof-compact the fill foundation surfaces using subgrade stabilization methods to a degree that allows the specified compaction of all overlying fill material to be achieved.

Provide all earthfill and aggregate materials from approved offsite sources. Materials shall meet the specified requirements and shall be placed and compacted in accordance with the specifications.

As shown on the Drawings, provide earthfilling to bridge over low areas, to backfill steep benches, and to provide drainage away from levee toe. Fill shall be Type 3 soil placed and compacted as specified.

In certain portions designated on the Drawings, smooth irregular ground by knocking down small ridges and irregularities along the levee toe, grading the toe access corridor to a relatively uniform surface, and providing drainage away from levee toe.

Construct access ramp to levee toe at southern end of levee reach, as shown on the Drawings.

Smooth grade access ramp at northern reach of levee.

Construct a reinforced concrete drainage ditch at the southern reach of levee.

Install a 36-inch-diameter HDPE culvert under the Island Avenue ramp with reinforced concrete headwalls on both ends, a trash rack on the upstream end, and a flap valve on the downstream end. Backfill culvert with CLSM and Type 3 soil as shown on the drawings.

Locate, preserve and protect existing buried PG&E gas pipeline during culvert installation.

Install new chain link fence as shown on the Drawings and as specified.

Install TRLIA-supplied concrete block barrier as shown on the Drawings.

Install contractor-procured concrete blocks

Install masonry block / chain link fencing as shown on the Drawings.

Place non-structural make-up wire fence between end posts of existing side fences and new fence parallel to levee to provide yard closure.

Install temporary fencing - 6’ chain link panels on moveable concrete or metal legs. The contractor shall be responsible for working with property owners to identify temporary fencing requirements due to livestock, pets, children, privacy or other needs. The bid item for this work shall be 1,000 LF and the pay quantity will be based on field measure of required temporary fencing. Alternative temporary fencing may be allowed if approved by the private property owner and TRLIA.

Install new pipe gates as shown on the Drawings.
• After installation of fencing, place and compact 6-inches of Class II aggregate base (Type 4 material) along the toe access corridor with a width of 14 feet unless otherwise shown on the Drawings, and grade to drain away from levee toe.

**Segment 1 Erosion Protection Berm**

- Strip the top six inches of soil from all vegetated areas that are to receive fill. Remove the stripped material from the site and dispose legally.
- Prepare and proof-compact the berm foundation surface using subgrade stabilization methods to a degree that allows the specified compaction of all overlying berm material to be achieved.
- Construct berm including filter aggregate (Type 2 soil) and berm fill (Type 3 soil). Place and compact Type 2 and Type 3 soil as specified.
- Provide all earthfill and aggregate materials from approved offsite sources. Materials shall meet the specified requirements and shall be placed and compacted in accordance with the specifications.

**Site Reclamation and Closeout**

- Revegetate areas disturbed along the toe access corridor, lower levee slope, and new erosion protection berm with specified levee seed mix.
- Demobilization.
- Contract Closeout.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

- End of Section -
PART 1  GENERAL

1.1. SUMMARY

Work will be paid for at Unit and Lump Sum prices listed in the Contract Price Schedule. It is the responsibility of the Contractor to make a thorough investigation of the Drawings, Specifications, and site to determine the scope of work included in the items listed on the Price Schedule. The payment of said prices will constitute complete compensation for all work shown on the Drawings and provided in the Specifications and/or other Contract Documents, and for all costs of accepting the general risks and liabilities associated with the work, and the payment of said prices shall include but not be limited to, compensation for labor, equipment, materials, services, supplies and consumables, and overhead and profit to perform and complete the work specified under each item. Work listed in summary descriptions of items below is intended to be indicative but not all inclusive.

1.2. LUMP SUM ITEMS

A. The quantities of work performed under items listed as Lump Sum (LS) in the Price Schedule will not be measured except for the purpose of determining reasonable progress payments. Progress payments will be made based on the mutually agreed payment schedule (or monthly processing of the Owner-approved Contractor’s cost-loaded CPM schedule).

1.3. VARIATION IN ESTIMATED QUANTITIES

A. The estimated quantities for unit price items, as listed in the Contract Price Schedule, are based on the scope of work defined on the Drawings and in the Specifications. The estimated nature and extent of the material quantities are based on previous site investigations and anticipated project needs. However, the actual quantities encountered or required may be different than the estimated quantities. The Owner reserves the right to increase or decrease any quantity or to eliminate any line item based on the actual project requirements encountered during the work.

B. The Contractor will not be entitled to any adjustment in a unit price as a result of any change in an estimated quantity except as allowed by Section 9 of the General Provisions.

C. The Contractor agrees to accept the unit prices as complete and total compensation for any additions or deductions caused by variations in the actual amount of work performed except as allowed by Section 9 of the General Provisions.

D. The Contractor agrees to accept the unit prices and actual quantities for computation of the value of the work performed.
E. Payment for unit price items will be made at the Contract unit prices stated in the Contract Price Schedule measured in accordance with the specified methods of measurement as stated in this section.

1.4. MEASUREMENT OF QUANTITIES

A. The quantity of work to be paid for under any item for which the unit price is specified in the Measurement and Payment Schedule shall be based on the actual amount of units of work satisfactorily completed in accordance with the Contract Documents, and as directed by Owner. No payment will be made for work done outside the prescribed or directed limits.

B. Contractor shall take all measurements and compute all payment quantities. Owner may verify measurements and quantities.

C. Excavation is incidental to other work items. No measurement for payment will be made for excavation.

D. Measurement for payment of each fill item (Material Types 2, 3 and 4), except as otherwise provided, will be the calculated number of fill cubic yards (FCY) of materials installed and compacted in place in the respective fill areas as shown on the Drawings and required by the Specifications. Measurement will begin from, and be based on, the approved limits of stipping and fill grades implemented and measured by survey. Contractor will not receive compensation for embankment or backfill placed in over-excavated areas not previously approved by Owner.

E. All work to be paid for at a unit price per unit of measure in accordance with the United States Standard Measures except as otherwise specified. A ton shall consist of 2,000 pounds avoirdupois.

F. Material paid for by weight shall be weighed on sealed scales certified and regularly inspected by the applicable department of weights and measures. Contractor shall provide weight tickets to Owner. If necessary, Contractor shall maintain on site, certified platform scales of sufficient size and capacity to accommodate loads.

G. When material is to be measured and paid for on a volume basis and it is not practical to determine the volume by the specified method of measurement, or when requested by the Contractor in writing and approved by Owner in writing, the material will be weighed in accordance with the requirements specified for weight measurement. Such weights will be converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by Owner and shall be agreed to by the Contractor before such method of measurement of pay quantities will be adopted.

H. Full compensation for all expenses involved in conforming to the requirements for measurement and weighing materials shall be considered as included in the unit prices paid for the materials.

I. Non-payment for rejected work.

1. Payment will not be made for any of the following:
a. Materials wasted or disposed of in a manner that is neither called for in the Contract Documents nor acceptable.
b. Materials determined as unacceptable before or after placement.
c. Materials not completely unloaded from the transporting vehicle.
d. Materials excavated and/or placed beyond the lines, grades, and levels of the required work (as indicated in the Contract Documents or as approved by Owner.)
e. Materials remaining on hand after completion of the Work.
f. Loading, hauling, handling, and disposal of rejected materials.

2. The materials described in item 1 above shall not be included in the final total pay quantities.

1.5. SCOPE OF PAYMENT

A. Payment provisions are specified in Section 8 of the General Provisions.
B. All of the Work in the Contract is included in the Price Schedule, which is intended to be the sole basis for compensation to Contractor.
C. No separate payment will be made for any of the requirements of Notice to Contractors. The cost for the requirements of the Notice to Contractors will be considered as included in the prices paid for the various contracted items included in the Contract Price Schedule.
D. Payment for all items shall include full compensation for all labor, materials, tools, equipment, plant, transportation services and incidentals necessary to the completed Work and for performing all Work contemplated and embraced under the Contract; and for completing the Work according to the Contract Documents. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective Work or material.
E. The Design Lines are shown on the Drawings; these lines show the extent of measurement for payment. All quantities of work performed outside those lines, unless otherwise specified or directed by Owner, will not be paid for.
F. No compensation will be made in any case for loss of anticipated profits.

1.6. SUBMITTALS

Submit invoices monthly in accordance with the General Provisions. Include update of Contract Price Schedule with each invoice.
### 1.7. MEASUREMENT AND PAYMENT SCHEDULE

<table>
<thead>
<tr>
<th>Pay Item No.</th>
<th>Pay Item Description</th>
<th>Measurement</th>
<th>Payment</th>
<th>Scope of Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobilization</td>
<td>Lump Sum</td>
<td>Payment shall be as specified in Section 8 of the General Provisions</td>
<td>Work shall include, but not be limited to the acquisition of all required permits and approvals; preparation of Quality Control Plan and all other preconstruction submittals; mobilization of all personnel, equipment, and materials; preparation of surveys and videos for existing access roads and facilities; installation of all temporary facilities, temporary utility connections, parking, sanitary facilities, and the establishment of staging / lay down areas, equipment servicing and maintenance facilities, access roads, safety items, etc.</td>
</tr>
<tr>
<td>2</td>
<td>Environmental Protection, Preservation and Protection of Site Features, Final Grading and Site Restoration</td>
<td>Lump Sum</td>
<td>Payment based on 100% completion of work or a mutually agreed percentage for progress payment</td>
<td>Work shall include, but not be limited to, providing all labor, materials, and equipment required to provide environmental protection as required by Section 10 of the General and Special Provisions, implementation of erosion protection and pollution prevention measures, and the implementation of owner-prepared SWPPP (including implementation of required BMP’s), protecting and preserving site features, and final site restoration.</td>
</tr>
<tr>
<td>3</td>
<td>Clearing and Grubbing</td>
<td>Lump Sum</td>
<td>Payment based on 100% completion of work or a mutually agreed percentage for progress payment</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required for the clearing, grubbing, chipping, and off-site disposal of relevant materials (such as trees, stumps, roots and other fibrous plant matter) from the landside toe access corridor and levee slope, and any other areas which require clearing and grubbing.</td>
</tr>
<tr>
<td>Pay Item No.</td>
<td>Pay Item Description</td>
<td>Measurement</td>
<td>Payment</td>
<td>Scope of Work</td>
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<tr>
<td>4</td>
<td>Demolition</td>
<td>Lump Sum</td>
<td>Payment based on 100% completion of work or a mutually agreed percentage for progress payment</td>
<td>Work shall include, but not be limited to, providing all labor, materials, and equipment required for demolition, removal, and off-site disposal of all structures and debris within the landside toe access corridor including residences, sheds, storage structures, foundations, fences, above ground and buried utilities, concrete piles, abandoned utility poles, and miscellaneous debris.</td>
</tr>
<tr>
<td>5</td>
<td>Temporary Fencing</td>
<td>Linear Feet</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required for installing temporary fencing where directed by the Engineer to ensure containment of domestic animals and/or maintain property enclosure during site activities.</td>
</tr>
<tr>
<td>6</td>
<td>Stripping</td>
<td>Acre</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required for the stripping and placement of stripped soil and organic soils from areas to receive fill along the Segment 1 berm area and Segment 3 toe access corridor. Soil from stripping shall be removed and deposed of legally at an offsite location.</td>
</tr>
<tr>
<td>7</td>
<td>Type 2 Fill, Filter/Drain Aggregate</td>
<td>Fill Cubic Yard As measured to lines shown in the Contract Drawings</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required for furnishing, placing, moisture conditioning, compacting, testing and surveying filter/drain material for berms and other uses.</td>
</tr>
<tr>
<td>Pay Item No.</td>
<td>Pay Item Description</td>
<td>Measurement</td>
<td>Payment</td>
<td>Scope of Work</td>
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<tr>
<td>8</td>
<td>Type 3 Fill, Random Fill</td>
<td>Fill Cubic Yard</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required to construct the fill areas as shown on the Drawings, including environmental testing of the proposed material source; final grading and preparing the subgrade; furnishing, placing, and compacting the material; materials testing; surveying; and moisture control. Type 3 fill used for culvert backfill is included with Pay Item No. 11.</td>
</tr>
<tr>
<td>9</td>
<td>Type 4 Fill – Caltrans Class 2 Aggregate Base</td>
<td>Fill Cubic Yard</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to, providing all labor, materials, and equipment required to construct patrol road on the levee landside toe access corridor, levee ramps, and surfacing at other locations shown on the Drawings, including final grading and preparing the subgrade; furnishing, placing, moisture conditioning, compacting, testing and surveying the aggregate; and final grading of the road surface.</td>
</tr>
<tr>
<td>10</td>
<td>Reinforced Concrete Ditch</td>
<td>Linear Foot</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to, providing all labor, materials, and equipment required for construction of concrete-lined ditch along the landside toe of the levee embankment as shown on the Drawings, including excavation, formwork and reinforcing.</td>
</tr>
<tr>
<td>11</td>
<td>Culvert</td>
<td>Linear Feet</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required for culvert installation, including access, protection of PG&amp;E gas pipeline, excavation, CLSM backfill, Type 3 backfill, tees, fittings, tie-ins, testing, inspections, survey, and all other work for a complete pipe installation.</td>
</tr>
<tr>
<td>12</td>
<td>Flap Gate</td>
<td>Lump Sum</td>
<td>Payment based on 100% completion of work</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required for furnishing and installing 36 inch flap gate at the culvert outlet.</td>
</tr>
<tr>
<td>Pay Item No.</td>
<td>Pay Item Description</td>
<td>Measurement</td>
<td>Payment</td>
<td>Scope of Work</td>
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</tr>
<tr>
<td>13</td>
<td>Trash Rack</td>
<td>Lump Sum</td>
<td>Payment based on 100% completion of work</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required for furnishing and installing trash rack at the culvert inlet.</td>
</tr>
<tr>
<td>14</td>
<td>Not used</td>
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</tr>
<tr>
<td>15</td>
<td>Reinforced Concrete Headwalls</td>
<td>Lump Sum</td>
<td>Payment based on 100% completion of work or a mutually agreed percentage for progress payment</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required for construction of the reinforced-concrete culvert headwalls, including formwork and reinforcing, as shown on the Drawings.</td>
</tr>
<tr>
<td>16</td>
<td>Self-standing end post at terminal end of each side fence at property line</td>
<td>Each</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to, providing all labor, materials, and equipment required for furnishing and installing new chain link fence posts at the terminal end along each property line as shown an the Drawings.</td>
</tr>
<tr>
<td>17</td>
<td>Chain Link Fence</td>
<td>Linear Feet</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to, providing all labor, materials, and equipment required for furnishing and installing new chain link fence as shown on the Drawings.</td>
</tr>
<tr>
<td>18</td>
<td>Placement of Owner-Supplied Concrete Blocks</td>
<td>Linear Feet</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to providing all labor and equipment required for placement of owner-supplied concrete blocks in the locations shown on the Drawings. Also included is minor grading required to smooth the foundation and place concrete blocks in a uniform manner and as directed by the Engineer.</td>
</tr>
<tr>
<td>19</td>
<td>Procure and Place New Concrete Blocks</td>
<td>Linear Feet</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to providing all labor, materials and equipment required for placement of new concrete blocks in the locations shown on the Drawings. Also included is minor grading required to smooth the foundation to place concrete blocks in a uniform manner and as directed by the Engineer.</td>
</tr>
<tr>
<td>Pay Item No.</td>
<td>Pay Item Description</td>
<td>Measurement</td>
<td>Payment</td>
<td>Scope of Work</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------</td>
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<td>----------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>20</td>
<td>Masonry Block / Chain Link Fence</td>
<td>Linear Feet</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to, providing all labor, materials, and equipment required for furnishing and installing new masonry block / chain link fence as shown on the Drawings, including reinforced-concrete footing, masonry blocks, embedded fence posts, reinforcement, grout, and chain link fencing.</td>
</tr>
<tr>
<td>21</td>
<td>Pipe Gate</td>
<td>EA</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to, providing all labor, materials, and equipment required to furnish and install new pipe gates at the locations shown on the Drawings or as directed by the Engineer.</td>
</tr>
<tr>
<td>22</td>
<td>Non-structural wire fence make-up sections</td>
<td>EA</td>
<td>Payment based on unit rate specified in Price Schedule</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required to install a chain link fence make-up sections to tie remaining fence at along property line to new chain link fence.</td>
</tr>
<tr>
<td>23</td>
<td>Revegetation</td>
<td>Acre</td>
<td>Payment based on unit rate per plan view acre</td>
<td>Work shall include, but not be limited to, providing all labor, materials, and equipment required for preparing the ground for planting, mulching, temporarily irrigating, weeding, maintaining, and related activities to vegetate the new fill areas and disturbed ground along the levee landside toe access corridor and new erosion protection berm. Areas with Type 4 fill are not included.</td>
</tr>
<tr>
<td>24</td>
<td>Asbestos and Lead Paint Survey</td>
<td>Lump Sum</td>
<td>Payment based on 100% completion of work</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required perform asbestos and lead-based paint survey for any structures known or suspected to have been constructed prior to 1985 in accordance with the General and Special Provisions.</td>
</tr>
<tr>
<td>Pay Item No.</td>
<td>Pay Item Description</td>
<td>Measurement</td>
<td>Payment</td>
<td>Scope of Work</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------------------------</td>
<td>-------------</td>
<td>----------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>25</td>
<td>Removal of UPRR Abandoned Utility Poles (Owner Option)</td>
<td>Lump Sum</td>
<td>Payment based on 100% completion of work</td>
<td>Removal of the abandoned UPRR utility poles are a Owner Option item. Work shall include, but not be limited to, providing all labor, materials, and equipment required for abandonment of the UPRR utility poles, including demolition, removal, off-site disposal and backfilling pole holes with concrete. The work also includes compliance with the UPRR Right-of-Entry agreement and obtaining the required Railroad Protective Liability Insurance.</td>
</tr>
<tr>
<td>26</td>
<td>Demobilization</td>
<td>Lump Sum</td>
<td>Payment based on 100% completion of demobilization at project completion</td>
<td>Work shall include, but not be limited to providing all labor, materials, and equipment required for the removal of all temporary facilities (offices, utility connections, sanitary facilities, etc.), restoration of all damaged site features, final cleanup, and completion of all project submittal requirements, including final site survey and record documents.</td>
</tr>
</tbody>
</table>

**PART 2 - PRODUCTS**
Not Used

**PART 3 - EXECUTION**
Not Used

- END OF SECTION 01270A -
PART 1   GENERAL

1.1   SCOPE

The work covered by this section consists of furnishing all equipment, labor, materials, and incidentals, and performing all operations necessary related to the Contractor's compliance with requirements for submittals in accordance with these specifications and applicable drawings. Submittals may include schedules, test results, Contractor's drawings, product information, manuals, surveys, samples, methods of construction, and record drawings. Other requirements for submittals are specified under applicable sections of the Specifications.

1.2   SCHEDULE OF SUBMITTALS

1.2.1   General

All submittals shall be submitted in accordance with the schedule requirements included in appropriate sections of the Specifications. The Contractor shall coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential requirements to resubmit. Whenever no specific schedule requirements are given, as a minimum, make the submittals of each section no later than one month prior to the start of work outlined in the section.

1.2.2   Owner and Engineer Review

Except as specified otherwise, the Contractor shall allow a review period, beginning with receipt by the Owner or Engineer, which includes at least fourteen (14) Calendar Days for submittals for Owner or Engineer approval. The period of review for submittals with Owner or Engineer approval begins when the Owner or Engineer receives submittal. Period of review for each re-submittal is the same as for initial submittal.

1.2.3   Submittals with Variations

In addition to normal submittal review period, a period of 14 Calendar Days will be allowed for consideration by the Owner or Engineer of submittals with variations.

1.3   SUBMITTAL REVIEW

1.3.1   Procedures

The Engineer will review all submittals for the purpose of determining whether the information contained in the submittal conforms to the requirements of the Contract Documents. The Engineer will return one (1) copy of each submittal with the following classifications:

- "No Exceptions Taken" - Resubmittal is not required. Contractor may proceed with the work.
• “Make Corrections Noted” – Resubmittal is not required. Contractor may proceed with work subject to comments.
• “Revise and Resubmit” - Resubmittal is required. Contractor may proceed with work subject to comments.
• “Rejected” - Submittal is not in conformance with Contract Documents. No work shall proceed for this item until the re-submittal is approved. Contractor may proceed with work on other items subject to comments.
• “Not Reviewed” or “For Information Only” - Items not reviewed or items for which no submittal is required, or a submittal has been previously reviewed and approved.

The Owner or Engineer's review of submittals shall not be construed as a complete check, but is only for general compliance with the design concept of the project. Approval will not relieve the Contractor of the responsibility for any error which may exist, nor will it relieve the Contractor from responsibility for providing materials, equipment, and work required by the Contract Documents; the proper fitting and construction of the work; the accuracy and completeness of the submittals; selecting fabrication processes and techniques of construction; performing the work in a safe and orderly manner; and fulfillment of the terms of the Contract. After submittals have been approved by the Owner or Engineer, no re-submittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

The Contractor shall make all corrections required by the Engineer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Engineer.

The Contractor is responsible for the Engineer’s review costs for each re-submittal in excess of the first re-submittal. These costs will be back-charged to the Contractor and will be deducted from progress payments.

1.3.2 Review of Submittal Procedures

The submittal procedures will be discussed in detail during the Preconstruction Conference and a final submittal procedure will be agreed upon.

1.4 FORMAT OF SUBMITTALS

1.4.1 Transmittal Form

The Contractor shall transmit submittals with a transmittal form which includes project identification, project number, date, submittal number, submittal description/title, submittal exclusions, special issues, Contractor, subcontractor, and any other relevant information.

The Contractor shall sign the following certification as part of each transmittal form:

“I hereby certify that I have carefully examined the enclosed submittal(s) and have determined and verified all field measurements, construction criteria, materials, catalog numbers and other pertinent data, coordinated the submittal(s) with other submissions and the work of other trades and contractors, and to the best of my
knowledge and belief, the enclosed submittal(s) is/are in full compliance with the Contract Documents."

1.4.2 Identifying Submittals

The Contractor shall identify each submittal with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

a. Owner’s name, project title, and location.
b. Construction contract number.
c. Section number of the specification section by which submittal is required.
d. Submittal title, number, revision number, and date of submittal and revision.
e. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other second tier Contractor associated with submittal.
f. Product identification and location in project.

1.4.3 Format of Submittals

a. Submittals shall not be less than 8 1/2 by 11 inches nor more than 30 by 42 inches.
b. Present 8 1/2 by 11 inch sized drawings / data sheets as part of the bound volume for submittals required by section. Present larger drawings in sets.
c. Dimension drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Shop drawing dimensions shall be the same unit of measure as indicated on the Contract Drawings. Identify materials and products for work shown.
d. Product data shall include the manufacturer’s name, trade name, place of manufacture, and catalog model or number.
e. Submit manufacturer's instruction / O&M data prior to installation, in a format which provides for optimum organization and ease of use.

1.4.4 Package Quality

Documents must be fully legible. Poor quality copies and material with hole punches obliterating the text or drawings will not be accepted.

1.4.5 Quantity of Submittals

Unless otherwise specified, the Contractor shall submit six (6) copies of all submittals requiring review.

For Operation and Maintenance Data the Contractor shall submit one (1) original and five (5) copies for review.

1.5 USE OF SUBMITTAL REGISTER

The Contractor shall develop a submittal register and submit it for Owner and Engineer approval. The submittal register shall identify each submittal required by the Contract and the associated Specification section or Drawing number and the required date of each submittal. The Engineer may require changes to the submittal register to permit concurrent review of related products.
The Contractor is required to complete the submittal register and submit it to the Owner or Engineer for approval within 10 Calendar Days after Notice to Proceed.

At a minimum, the register shall include columns for:
- Contractor’s transmittal number for submittal
- Submittal reference number
- Revision number
- Reference to relevant Specification sections
- Description of submittal
- Contractor required submittal date
- Contractor actual submittal date
- Date submittal actually received by approving authority
- Action code
- Date submittal returned to Contractor by approving authority

A preliminary submittal register is included as Attachment A to this specification section. If Contractor chooses to use this preliminary listing as a basis for his register, Contractor shall develop it further to include quality control test results and other submittals required by the specifications and to fill out the additional information required.

Submittals shall be scheduled and coordinated with Owner and the Contractor's Construction Schedule.

1.6 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained. No payment will be made for any materials incorporated into the work that constitute a deviation from the Contract Documents, regardless of whether the materials have been included in an approved submittal, unless specifically approved by the Engineer. No payment will be made for any materials incorporated into the work as a result of approved submittals found to contain errors or deviations from the Contract Documents.

1.7 CONTRACTOR’S RESPONSIBILITY

Contractor is responsible for completing all Work in accordance with the Contract and no review by Owner, Engineer, or their consultants, shall relieve or in any way diminish Contractor’s responsibilities under the Contract. Contractor is solely responsible for means and methods of construction and for safety of persons and property at the project site. No review or approval of Contractor’s submittals by the Engineer will relieve the Contractor from its responsibility to fulfill the terms of the Contract. No review, observation or inspection by inspectors retained by Owner or others shall relieve or in any way diminish Contractor’s responsibility to complete all Work in accordance with the Contract.

PART 2 PRODUCTS
Not Used

PART 3 EXECUTION
Not Used
# ATTACHMENT A
## PRELIMINARY SUBMITTAL REGISTER

<table>
<thead>
<tr>
<th>Transmittal No.</th>
<th>Submittal Reference</th>
<th>Revision</th>
<th>Specification Reference</th>
<th>Description</th>
<th>Contractor Required Submittal Date</th>
<th>Actual Submittal Date</th>
<th>Date received</th>
<th>Date returned to Contractor</th>
<th>Assigned Action Code</th>
<th>Remarks / Notes</th>
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<tbody>
<tr>
<td>PRE-CONSTRUCTION</td>
<td>GP 6-20.01</td>
<td></td>
<td>GP 6-10</td>
<td>Relevant Approved Permits</td>
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<td></td>
<td>Prior to starting work subject to permit</td>
</tr>
<tr>
<td></td>
<td>GP 10-4</td>
<td></td>
<td>GP 10-10 SP-06-10</td>
<td>Site Photographs</td>
<td>GP 6-11-2 Site video</td>
<td>GP 11-2 Site video</td>
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<td>Prior to starting work - sample to be submitted for review first</td>
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<td>01451A, Par. 3.2</td>
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<td>01572</td>
<td>Waste Management Plan</td>
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<td>Within 15 Calendar Days of Notice to Proceed and prior to starting work</td>
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<tr>
<td></td>
<td>GP 6-1.1012</td>
<td></td>
<td></td>
<td>Contractor Quality Control Plan</td>
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<td>Not later than 15 Calendar Days after Notice to Proceed</td>
</tr>
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<td></td>
<td>GP 6-14.02</td>
<td></td>
<td>SP-06-4</td>
<td>Traffic Control Plan (TCP) Traffic Safety plan</td>
<td>GP 6-14.02 SP-06-4 Traffic Control Plan (TCP) Traffic Safety plan</td>
<td>GP 6-14.02 SP-06-4 Traffic Control Plan (TCP) Traffic Safety plan</td>
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<td></td>
<td>Prior to starting work which may effect traffic</td>
</tr>
<tr>
<td></td>
<td>GP 7-5</td>
<td></td>
<td>SP-2-3</td>
<td>Analytical testing of borrow material used for earthwork construction</td>
<td>GP 7-5 Contractor’s Schedule</td>
<td>GP 7-5 Contractor’s Schedule</td>
<td></td>
<td></td>
<td></td>
<td>Within 15 days after Notice to Proceed and prior to starting work</td>
</tr>
<tr>
<td></td>
<td>GP 7-5.02</td>
<td></td>
<td>SP-6-11.01</td>
<td>Fire Management and Control Plan</td>
<td>GP 7-5.02 Critical Path Method Schedule</td>
<td>GP 7-5.02 Critical Path Method Schedule</td>
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<td>Within 30 days of receipt of the Contract</td>
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<td></td>
<td>GP 10-4.04</td>
<td></td>
<td>SP-2-3</td>
<td>Storm Water Pollution Prevention Plan (SWPPP)</td>
<td>GP 10-4.04 Storm Water Pollution Prevention Plan (SWPPP)</td>
<td>GP 10-4.04 Storm Water Pollution Prevention Plan (SWPPP)</td>
<td></td>
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<td>Prior to starting work</td>
</tr>
<tr>
<td></td>
<td>SP-2-3</td>
<td></td>
<td>SP-2-3</td>
<td>Analytical testing of borrow material used for earthwork construction</td>
<td>GP 10-4.04 Storm Water Pollution Prevention Plan (SWPPP)</td>
<td>GP 10-4.04 Storm Water Pollution Prevention Plan (SWPPP)</td>
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<td>Prior to starting work</td>
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<td>GP 01500A, Par. 1.1.1</td>
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<td>GP 01500A, Par. 1.1.1</td>
<td>Site Plan</td>
<td>GP 01500A, Par. 1.1.1 Site Plan</td>
<td>GP 01500A, Par. 1.1.1 Site Plan</td>
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<td></td>
<td>Within 15 Calendar Days of Notice to Proceed and prior to starting work</td>
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</table>

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<table>
<thead>
<tr>
<th>Transmittal No.</th>
<th>Submittal Reference</th>
<th>Revision</th>
<th>Specification Reference</th>
<th>Description</th>
<th>Contractor Required Submittal Date</th>
<th>Actual Submittal Date</th>
<th>Date received</th>
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<th>Assigned Action Code</th>
<th>Remarks / Notes</th>
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<td>Submittal Register</td>
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<td>Within 10 calendar days after Notice to Proceed</td>
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<td>02000</td>
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<td></td>
<td>Mobilization/Demobilization Work Plan</td>
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<td></td>
<td></td>
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<td>Before starting the work</td>
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<td></td>
<td>02000</td>
<td></td>
<td></td>
<td>Pre-construction topographic and photographic survey of access roads and staging areas</td>
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<td></td>
<td></td>
<td></td>
<td>Prior to starting work</td>
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<td></td>
<td></td>
<td>n/a</td>
<td>Meeting Minutes Approval</td>
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<td>Prior to next coordination meeting</td>
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<td>01500A, Par. 1.4.3</td>
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<td></td>
<td>Profile, topographic, photographic, and video survey of portions of existing roadways, levee crest, or ramps to be used for haul roads or Contractor access.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>At least two weeks prior to use.  Within two weeks after completion of construction and restoration work.</td>
</tr>
<tr>
<td></td>
<td>GP 6-20.02 02315</td>
<td></td>
<td></td>
<td>Excavation / shoring plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>At least 7 Calendar Days before excavation of any trench 5' or more in depth</td>
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<tr>
<td></td>
<td>GP 9-8.03</td>
<td></td>
<td></td>
<td>Daily Work Reports</td>
<td></td>
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<td></td>
<td></td>
<td>At the end of each working day or prior to the start of the next working day.</td>
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<td>GP 7-5.01</td>
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<td>Weekly Progress Schedules</td>
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<td>On a weekly basis</td>
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<td>01451A, Par. 3.9</td>
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<td>Quality control reports</td>
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<td>Daily within 48 hours of the date of the report.  For periods of no work, a minimum of one report to be submitted each week</td>
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<td></td>
<td>GP 10-10</td>
<td></td>
<td></td>
<td>Confined Space Working Plan</td>
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<td>Prior to doing work in a confined space.</td>
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<td></td>
<td>01270A</td>
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<td>Invoices</td>
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<td>On a monthly basis</td>
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<td>Job Hazard Analysis</td>
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<td></td>
<td>For each major phase of work prior to entering that phase of activity</td>
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<tr>
<td></td>
<td>01510, Par. 1.3.7</td>
<td></td>
<td></td>
<td>Summary of Worker's Compensation Claims</td>
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<td></td>
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<td>At the 50% point and 100% of project completion</td>
</tr>
<tr>
<td></td>
<td>01780A</td>
<td></td>
<td></td>
<td>Operation &amp; Maintenance Manuals</td>
<td></td>
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<td></td>
<td></td>
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<td>A minimum of 30 Calendar Days before Final Acceptance</td>
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<tr>
<td></td>
<td>02220</td>
<td></td>
<td></td>
<td>Demolition and disposal plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>At least three weeks prior to starting the work</td>
</tr>
</tbody>
</table>

CONSTRUCTION

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<table>
<thead>
<tr>
<th>Transmittal No.</th>
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<th>Specification Reference</th>
<th>Description</th>
<th>Contractor Required Submittal Date</th>
<th>Actual Submittal Date</th>
<th>Date returned to Contractor</th>
<th>Owner / Engineer Assigned Action Code</th>
<th>Remarks / Notes</th>
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<tbody>
<tr>
<td>02220</td>
<td></td>
<td></td>
<td></td>
<td>Statement and documentation regarding disposal of materials</td>
<td>After demolition is complete</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02220</td>
<td></td>
<td></td>
<td></td>
<td>Asbestos and lead paint survey and abatement quote</td>
<td>At least two weeks prior to demolition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02315</td>
<td></td>
<td></td>
<td></td>
<td>Excavation and Site Preparation  • Qualifications  • Operational Plan  • Borrow Area Plan  • Excavation Plan  • Quality Control Plan</td>
<td>At least three weeks prior to the start of work on this item of work</td>
<td></td>
<td></td>
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<tr>
<td>02315</td>
<td></td>
<td></td>
<td></td>
<td>Surveys</td>
<td>At least three weeks prior to the start of work on this item of work</td>
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<tr>
<td>02315, 02331</td>
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<td></td>
<td></td>
<td>Quality Control Plan and Date</td>
<td>Submit plan at least three weeks prior to the start of work on this item  Submit test results within 24 hours of test</td>
<td></td>
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</tr>
<tr>
<td>02331</td>
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<td></td>
<td></td>
<td>Embankment Construction  • Qualifications  • Operational Plan  • Embankment Plan  • Appurtenances Product Data</td>
<td>At least two weeks prior to the start of work on this item of work for all items.</td>
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<td></td>
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<tr>
<td>02331</td>
<td></td>
<td></td>
<td></td>
<td>Existing condition surveys of access roads, haul roads, and staging areas</td>
<td>At least two weeks prior to the start of work on this item of work</td>
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<td>Survey data and calculation of weekly fill volume placement</td>
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<td>02510</td>
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<td>Manufacturers' product data for HDPE pipe and pipe connection materials</td>
<td>At least three weeks prior to the start of culvert installation</td>
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<td>Automatic drainage gate supplier and product information</td>
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<td>Description</td>
<td>Contractor Required Submittal Date</td>
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<td>Concrete for Minor Structures &amp; Ditch Lining</td>
<td>Proposed procedures • Seeding sample • Invoices</td>
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<td>03307A, Par. 3.1.4.3</td>
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<td>Proposed method of measuring materials, batching operation, and mixer</td>
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<td>Shop drawings for miscellaneous metal components</td>
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**POST-CONSTRUCTION**

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<th>Date returned to Contractor</th>
<th>Assigned Action Code</th>
<th>Remarks / Notes</th>
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| GP 11-3 01780A |                     |          | GP 11-3 01780A | As-built/ Record Drawings | | | | | | | • Within 10 Calendar Days after Engineer approval of working as-built drawings.  
  • Within 7 days of receiving Owner comments  
  • At least 10 days prior to Pre-final Inspection Meeting  
  • At Final Inspection.  
  • After Owner approval, if necessary |
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<td>Final approved shop drawings</td>
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<td>01780A</td>
<td>Final As-built construction contract specifications</td>
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**Notes:**
1. The preliminary submittal register is provided for information only and should not be considered as complete. It is the Contractor’s responsibility to verify all information included in the table, as well as to identify any submittals required by the specifications which may not be included.
2. The Contractor shall submit all revisions to the Engineer.
SECTION 01420
SOURCES FOR REFERENCE PUBLICATIONS

PART 1   GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings).

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

ACI INTERNATIONAL (ACI)
P.O. Box 9094
Farmington Hills, MI 48333-9094
Ph: 248-848-3700
Fax: 248-848-3701
Internet:  http://www.aci-int.org

ALUMINUM ASSOCIATION (AA)
900 19th Street N.W., Ste 300
Washington, DC 20006
Ph: 202-862-5100
Fax: 202-862-5164
Internet: http://www.aluminum.org

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
444 N. Capital St., NW, Suite 249
Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806
Internet: http://www.aashto.org

AMERICAN BEARING MANUFACTURERS ASSOCIATION (ABMA)
2025 M Street, NW, Suite 800
Washington, DC 20036
Ph: 202-367-1155
Fax: 202-367-2155  
Internet: http://www.abma-dc.org

AMERICAN GEAR MANUFACTURERS ASSOCIATION (AGMA)  
1500 King St., Suite 201  
Alexandria, VA 22314-2730  
Ph: 703-684-021  
Fax: 703-684-0242  
Internet: http://www.agma.org

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)  
One West Wacker Dr., Suite 3100  
Chicago, IL 60601-2001  
Ph: 312-670-2400  
Publications: 800-644-2400  
Fax: 312-670-5403  
Internet: http://www.aisc.org

AMERICAN IRON AND STEEL INSTITUTE (AISI)  
1140 Connecticut Avenue, NW, Suite 705  
Washington, DC 20036  
Ph: 202-452-7100  
Fax: 202-463-6573  
Internet: http://www.steel.org

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)  
1819 L Street, NW, 6th Floor  
Washington, DC 20036  
Ph: 202-293-8020  
Fax: 202-293-9287  
Internet: http://www.ansi.org/

Note --- Documents beginning with the letter "S" can be ordered from:

Acoustical Society of America  
2 Huntington Quadrangle, Suite 1NO1  
Melville, NY 11747-4502  
Ph: 516-576-2360  
Fax: 516-576-2377  
Internet: http://asa.aip.org  
General e-mail: asa@aip.org

AMERICAN PETROLEUM INSTITUTE (API)  
1220 L St., NW  
Washington, DC 20005-4070  
Ph: 202-682-8000
Fax: 202-682-8223
Internet: http://www.api.org

AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT)
1711 Arlingate Lane
P.O. Box 28518
Columbus, OH  43228-0518
Ph:  800-222-2768;  614-274-6003
Fax:   614-274-6899
Internet: http://www.asnt.org

AMERICAN WATER WORKS ASSOCIATION (AWWA)
6666 West Quincy Avenue
Denver, CO  80235
Ph:  303-794-7711
Fax:  303-794-3951
Internet: http://www.awwa.org

AMERICAN WELDING SOCIETY (AWS)
550 N.W. LeJeune Road
Miami, FL  33126
Ph:   800-443-9353;  305-443-9353
Fax:  305-443-7559
Internet: http://www.aws.org

ASME INTERNATIONAL (ASME)
Three Park Avenue
New York, NY 10016-5990
Ph:   212-591-7722
Fax: 212-591-7674
Internet: http://www.asme.org

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, PO Box C700
West Conshohocken, PA  19428-2959
Ph:  610-832-9500
Fax:  610-832-9555
Internet: http://www.astm.org

Insert CVFPB, Title 23.

CALIFORNIA DEPARTMENT OF WATER RESOURCES
Bulletins & Reports Section
P.O. Box 942836
Sacramento, CA 94236
Ph:  916-445-9371
Internet:
http://www.groundwater.water.ca.gov/technical_assistance/gw_wells/gww_standards/index.cfm

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
933 n. Plum Grove Road
Schaumburg, IL  60173-4758
Ph:  847-517-1200
Fax:  847-517-1206
Internet:  http://www.crsi.org/

HYDRAULIC INSTITUTE
9 Sylvan Way
Parsippany, NJ  07054-3802
Ph:  973-267-9700
Fax:  973-267-9055
Internet:  http://www.pumps.org

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
445 Hoes Ln
Piscataway, NJ   08855-1331
Ph:  732-981-0060
Fax:  732-981-1712
Internet:  http://www.ieee.org
Email: customer.service@ieee.org

ISA – THE INSTRUMENTATION, SYSTEMS AND AUTOMATION SOCIETY (ISA)
67 Alexander Drive
P.O. Box 12277
Research Triangle Park, NC  27709
Ph:  919-549-8411
Fax:  919-549-8288
Internet:  http://www.isa.org

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
1300 N. 17th St., Suite 1847
Rosslyn, VA  22209
Ph:  703-841-3200
Fax:  703-841-3300
Internet:  http://www.nema.org/
E-mail: jas_peak@nema.org

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)
100 Burea Drive
Stop 3460
Gaithersburg, MD  20899-3460
Ph:  301-975-NIST
Internet:  http://www.nist.gov
Order Publications From:
Superintendent of Documents
U.S. Government Printing Office
732 North Capitol Street, NW
Mailstop: SDE
Washington, DC 20401
Ph: 866-52-1800 or 202-512-1800
Fax: 202-512-2250
Internet: http://www.gpo.gov

Or
National Technical Information Services (NTIS)
5285 Port Royal Rd.
Springfield, VA 22161
Ph: 703-605-6000
Fax: 703-605-6900
Internet: http://www.ntis.gov

NATIONAL READY-MIXED CONCRETE ASSOCIATION (NRMCA)
900 Spring St.
Silver Springs, MD 20910
Ph: 301-587-1400
Fax: 301-585-4219
Internet: http://www.nrmca.org

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)
1939 Harrison Street, Suite 400
Oakland, CA 94612
Ph: 510-832-1415
Fax: 510-832-0359
Internet: http://www.scsl.com

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION
Publication Distribution Unit
1900 Royal Oaks Drive
Sacramento, California 95815-3800
Ph: 916-445-3520

STEEL DECK INSTITUTE (SDI)
P.O. Box 25
Fox River Grove, IL 60021-0025
Ph: 847-462-1930
Fax: 847-462-1940
Internet: http://www.sdi.org
e-mail: steve@sdi.org

STEEL JOIST INSTITUTE (SJI)
3127 Tenth Ave., North Ext.
Myrtle Beach, SC 29577-6760
THE SOCIETY FOR PROTECTIVE COATINGS (SSPC)
40 24th Street, 6th Floor
Pittsburgh, PA 15222-4656
Ph: 412-281-2331
Fax: 412-281-9992
Internet: http://www.steeljoist.org

UNDERWRITERS LABORATORIES (UL)
333 Pfingsten Rd.
Northbrook, IL 60062-2096
Ph: 847-272-8800
Fax: 847-272-8129
Internet: http://www.ul.com/
e-mail: northbrook@us.ul.com

U.S. ARMY CORPS OF ENGINEERS (USACE)
Order CRD-C DOCUMENTS from:
U.S. Army Engineer Waterways Experiment Station
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3909 Halls Ferry Rd.
Vicksburg, MS 39180-6199
Ph: 601-634-2664
Fax: 601-634-2388

Order Other Documents from:
USACE Publications Depot
Attn: CEIM-SP-D
2803 52nd Avenue
Hyattsville, MD 20781-1102
Ph: 301-394-0081
Fax: 301-394-0084
Internet: http://www.usace.army.mil/publications
or http://www.hnd.usace.army.mil/techinfo/index.htm

U.S. GENERAL SERVICES ADMINISTRATION (GSA)
General Services Administration
1800 F Street, NW
Washington, DC 20405
Ph: 202-501-0705

Order From:
General Services Administration
PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

- End of Section 01420 -
SECTION 01451A
CONTRACTOR QUALITY CONTROL

PART 1   GENERAL

1.1   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 3740 Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM E 329 Standard Specification for Agencies Engaged in the Construction Inspection and/or Testing

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION

3.1   GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the General Provisions and these Specifications. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction design and construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Engineer for non-compliance with the quality requirements specified in the contract. The site project superintendent, in this context, shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Engineer, and shall be responsible for all construction and construction related activities at the site.

3.2   QUALITY CONTROL PLAN

The Contractor shall furnish for review by the Owner, not later than 15 Calendar Days after receipt of Notice To Proceed, the Contractor Quality Control (CQC) Plan. The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Owner will consider an interim plan for the first 15 Calendar Days of operation. Construction design and construction will be permitted to begin only after Owner acceptance.
of the CQC Plan or Owner acceptance of an interim plan applicable to the particular feature of work to be started. Outside of the features of work included in an accepted interim plan, work will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.1 Contents of the CQC Plan

As a minimum, the CQC Plan shall include the following to cover all onsite and offsite design and construction operations performed by subcontractors, fabricators, purchasing agents’ subcontractors, designers of record, consultants, architect/engineers (AE), fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and an acknowledgment that the CQC staff shall implement the three phase control system, defined in paragraph CONTROL of this Section, for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager, signed by an authorized official of the firm, which describes the responsibilities of the CQC System Manager and delegates sufficient authority to the CQC System Manager to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Owner.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, purchasing agents’ subcontractors, designers of record, consultants, architect engineers (AE), offsite fabricators, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test. Include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. Laboratory facilities approved by the Engineer shall be used.

f. Procedures for tracking preparatory, initial, and follow-up control phases and for tracking control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction design and construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.
i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks and has separate control requirements. A definable feature of the work may be identified by different trades or disciplines or may be work by the same trade in a different environment. Each section of the Specifications may generally be considered as a definable feature of work, but there is frequently more than one definable feature under a particular section. The list of definable features of work will be agreed upon during the coordination meeting.

3.2.2 Acceptance of Plan

Acceptance of the Contractor's CQC Plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Owner reserves the right to require the Contractor to make changes in his CQC Plan and operations, including replacement of personnel, to obtain the quality specified.

3.2.3 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Engineer in writing of any proposed change. Proposed changes are subject to acceptance by the Engineer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to Owner acceptance of the CQC Plan, the Contractor shall meet with the Engineer and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review not later than 15 Calendar Days after Notice to Proceed and at least 5 Calendar Days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Owner's Quality Assurance. Minutes of the meeting shall be prepared by the Owner and signed by both the Contractor and the Engineer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall serve as a member of the CQC staff and shall receive direction and authority from the CQC System Manager. Personnel identified in the technical specifications as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and shall have
complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Engineer. The Contractor shall provide adequate office space, filing systems, and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records consisting of all letters, material submittals, shop drawing submittals, schedules, and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Engineer.

3.4.2 CQC System Manager

The CQC System Manager, identified by the Contractor, shall be an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 10 years construction experience in construction of projects similar to the work undertaken in this Contract. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have other duties. However, the CQC System Manager shall not be the same person that occupies the position of project superintendent. An alternate for the CQC System Manager shall be identified in the CQC Plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Engineer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, including that of subcontractors and suppliers, complies with the requirements of the Contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of the construction work as follows:

3.6.1 Preparatory Phase

The Preparatory Phase shall be performed on each definable feature of work prior to beginning the work, but after all required plans/documents/materials are approved/accepted.
and after copies of the plans/documents/materials are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications, reference codes, and standards applicable to that portion of the definable feature of work to be accomplished in the field. A copy of those sections of referenced codes and standards shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Owner personnel until final acceptance of the work.


c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

d. Review of provisions that have been made for required control, inspection, and testing.

e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including identifying and avoiding repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the CQC Plan for the work to be performed has been accepted by the Engineer.

j. Discussion of the Initial Phase.

k. Notify the Owner at least 24 hours in advance of beginning the Preparatory Phase. The Preparatory Phase shall include a Preparatory Phase Meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature of work. The results of the Preparatory Phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet the Contract Specifications.

3.6.2 Initial Phase

The Initial Phase shall be accomplished at the beginning of each definable feature of work. The following shall be accomplished:
a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the Preparatory Phase Meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity hazard analysis with each worker.

f. Notify the Owner at least 24 hours in advance of beginning the Initial Phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of Initial Phase shall be indicated for future reference and comparison with follow-up phases.

g. The Initial Phase should be repeated for each new crew to work onsite or any time specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements until completion of the particular definable feature of work. The checks shall be made part of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work that may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision, or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish duplicate samples of test specimens to the Owner for possible testing by the Owner. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of an Owner-approved testing laboratory or establish an
approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Engineer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Engineer. Failure to submit timely test reports may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories Capability Check

The Owner reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the Contract Specifications and to check the laboratory technician’s testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.3 Onsite Laboratory

The Owner reserves the right to utilize the Contractor’s control testing laboratory and equipment to make assurance tests and to check the Contractor’s testing procedures, techniques, and test results at no additional cost to the Owner.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Owner shall be delivered to the Owner.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection
Near the end of the work, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION of this Section. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Owner that the facility is ready for the Owner pre-final inspection.

3.8.2 Pre-Final Inspection

The Owner will perform the pre-final inspection to verify that the facility is complete. An Owner pre-final punch list may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Owner, so that a final inspection with the Owner can be scheduled. Any items noted on the pre-final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Engineer shall be in attendance at the final acceptance inspection. Additional Owner personnel may also be in attendance. The final acceptance inspection will be formally scheduled by the Engineer based upon results of the Pre-Final inspection. Notice shall be given to the Engineer at least 14 Calendar Days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Engineer to bill the Contractor for the Owner's additional inspection cost.

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom.
d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies shall be noted, along with corrective action and results of retests for each failed test.

e. Quantity of materials received at the site with statement as to acceptability, storage details, and reference to specifications/drawings requirements.

f. Submittals and deliverables reviewed with contract reference, reviewer, and action taken.

g. Offsite surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Owner daily within 48 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 Calendar Days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 NOTIFICATION OF NONCOMPLIANCE

The Engineer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Engineer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

- END OF SECTION 01451A -
SECTION 01500A
TEMPORARY CONSTRUCTION FACILITIES

PART 1   GENERAL

1.1   GENERAL REQUIREMENTS

1.1.1   Submittal of Site Plan

Within 15 Calendar Days after Notice to Proceed the Contractor shall prepare and submit a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also identify the proposed locations and dimensions of staging/laydown areas.

1.1.2   Identification of Employees

The Contractor shall be responsible for furnishing to each employee, and for requiring each employee engaged on the work to display, identification as approved and directed by the Engineer. Prescribed identification shall immediately be delivered to the Engineer for cancellation upon release of any employee. When required, the Contractor shall obtain and provide fingerprints of persons employed on the project. Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.

1.1.3   Employee Parking

Contractor employees shall park privately owned vehicles in staging areas or other approved areas designated by the Engineer. This area will be within reasonable walking distance of the construction site. Contractor employee parking shall not interfere with existing and established roadways or agricultural land in the project area.

1.2   AVAILABILITY AND USE OF UTILITY SERVICES

1.2.1   Sanitation

The Contractor shall provide and maintain within the construction area field-type sanitary facilities approved by the Engineer. Owner toilet facilities will not be available to Contractor's personnel.

1.2.2   Telephone

The Contractor shall make arrangements and pay all costs for telephone facilities desired.
1.2.3 Potable Water

There is not potable water at the project site. The Contractor shall make arrangements and pay all costs for an adequate supply of potable water for all project personnel.

1.2.4 Construction Water and Power

The Contractor shall make arrangements and pay all costs for construction water and power.

1.3 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.3.1 Bulletin Board

Immediately upon beginning of work, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Engineer. The bulletin board shall be located at the project site in a conspicuous place easily accessible to all employees, as approved by the Engineer. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by and remain the property of the Contractor.

1.3.2 Project and Safety Signs

The requirements for the signs, their content, and location shall be as described in Section 01510 GENERAL SIGNAGE AND SAFETY. The signs shall be erected within 15 days after receipt of the notice to proceed. The data required by the safety sign shall be corrected daily, with light colored metallic or non-metallic numerals. Upon completion of the project, the signs shall be removed from the site.

1.4 PROTECTION AND MAINTENANCE OF TRAFFIC AND ROADS

1.4.1 Protection and Maintenance of Traffic

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Engineer. Contractor shall provide crossings to ensure access to landholdings west of the levee. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic.
1.4.2 Access and Haul Roads

The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall, at its own expense, improve existing access roads and construct new access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Engineer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads designated by the Engineer shall be removed.

1.4.3 Use of Levees as Haul Routes

Traffic of loaded haul units along existing levees and levee ramps shall be avoided to the maximum extent practicable. When use of existing levees as haul routes cannot be avoided, the levee patrol road shall be used to route empty haul units, while loaded units shall travel on public roads or along the levee toe to the maximum extent practicable.

1.4.4 Maintenance and Restoration of Access and Haul Roads

Existing access roads shall be maintained at pre-construction condition or better throughout the contract period, including any portions of existing levees or levee ramps used for access or haul roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations. The Contractor shall survey profiles and cross-sections and make videos of the portions of existing roads, levees, and levee ramps that will be used by the Contractor as access or haul roads. The surveyed profiles and cross-sections and the video documentation shall be submitted to the Engineer at least two weeks prior to use of the roads or levees. A second set of surveyed profiles and cross-sections and video documentation of the roads and levees used shall be made and submitted to the Engineer within two weeks after completion of the construction and levee and road restoration work. The survey and video shall demonstrate that the condition of the roads and levee segments after construction are at pre-construction condition or better, defined as follows:
  a. Road grade not lower than at pre-construction, per survey profile
  b. Road width not lower than at pre-construction, per surveyed cross-sections
  c. Road surfacing in equal or better condition than at pre-construction, per video documentation

1.4.5 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to the work area and to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.
1.5 CONTRACTOR'S TEMPORARY FACILITIES

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own equipment. Unless otherwise approved by the Engineer, the Contractor shall provide 24-hour security personnel at the site in compliance with the Special Provisions.

1.6 NOT USED

1.7 SITE COMMUNICATION

Whenever the Contractor has the individual elements of its site facilities so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as hand-held radio, telephone or other suitable devices. The devices shall be made available for use by Owner personnel.

1.8 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, the Contractor shall furnish and erect temporary project safety fencing at the work site. The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers, constructed at the approved location. The safety fencing shall be maintained by the Contractor during the life of the contract and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site.

1.9 CLEANUP

Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away promptly. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

1.10 RESTORATION OF AREAS USED BY CONTRACTOR

Upon completion of the project and after removal of materials and equipment from within the fenced area, and the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor, including areas used for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the areas restored to their original condition.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used
PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM) STANDARDS

F 2412-05 Standard Test Methods for Foot Protection
F 2413-05 Standard Specification for Performance Requirements for Foot Protection

FEDERAL SPECIFICATIONS

FF-B-575C Bolts, Hexagon and Square
FF-N-105B and Int. Am-4 Nails, Brads, Staples and Spikes: Wire, Cut and Wrought
FF-N-836D and Am-1 Nut: Square, Hexagon, Cap, Slotted, Castle, Knurled, Welding and Single Ball Seat
TT-P-001984 Primer Coating, Latex Base, Exterior, (Undercoat for Wood), White and Tint

FEDERAL STANDARD

No. 595a and Change Notices 1-6 Colors

MILITARY SPECIFICATION

MIL-P-28582 Primer Coating, Exterior, Lead Pigment-Free (Undercoat for Wood Ready-Mixed, White and Tints)

U. S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 Safety and Health Requirements Manual

U.S. DEPARTMENT OF COMMERCE, NATIONAL BUREAU OF STANDARDS PUBLICATION

PS 1-74 Product Standard: Construction and Industrial Plywood
PS 20-70 Product Standard: American Softwood Lumber Standard and AM-1
1.2 PROJECT SIGNS

1.2.1 General

The Contractor shall construct and erect project, safety, and hard hat signs at locations designated by the Engineer. The signs shall conform to the details in Attachment 1. The signs shall be erected within 5 Calendar Days after Notice to Proceed, and upon completion and acceptance of the work, the signs shall become the property of the Contractor and shall be removed from the work site.

The Contractor shall furnish the following signs:

- Project Sign
- Hard Hat Sign
- Safety Sign
- Road Closure

1.2.2 Painting

All exposed surfaces and edges of plywood shall be given one coat of linseed oil and be wiped prior to applying primer. All exposed surfaces of signs and supports shall be given one coat of primer and two finish coats of white paint. All lettering shall be sized as indicated. Width of letter stroke shall be 1/6 of the letter height, except as noted.

1.2.3 Placement of Signs

Sign placement shall be coordinated with Engineer and signs installed prior to beginning of work.

Hard Hat Signs and Safety Signs are required at all staging areas and work zone access points and as required by applicable safety standards.

Road Closure Signs are required at all road closures.

1.3 GENERAL SAFETY REQUIREMENTS

1.3.1 General
The Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, the Occupational Safety and Health Act (OSHA) Standards for Construction (Title 29, Code of Federal Regulations Part 1926 as revised from time to time), and the California Construction Safety Orders of Title 8 of the California Code of Regulations (Section 1500 et seq.) are applicable to this contract. In case of conflict the most stringent requirement of the standards is applicable.

1.3.2 Contractor's Superintendent

The Contractor's superintendent shall take an active role in enforcing the safety requirements by participation in safety conferences, hazard analysis (see below), toolbox meetings, walk-through inspections, correction of violations, etc., including that of the subcontractor's work.

1.3.3 Job Hazard Analysis

Based on the construction schedule, the Contractor shall submit a job hazard analysis of each major phase of work prior to entering that phase of activity. The analysis shall include major or high risk hazards, as well as commonly recurring deficiencies that might possibly be encountered for that operation. The analysis shall identify the Contractor's proposed superintendent, who shall take active participation in the Job Hazard Analysis, including the subcontractors' work. Prior to start of actual work a meeting shall be held with the Contractor, Engineer, and affected subcontractors to review the Job Hazard Analysis. In addition, job site meetings shall be held to indoctrinate supervisory personnel and workers on details of this analysis.

1.3.4 Violations

If recurring violations and/or gross violation indicate that the safety performance is unsatisfactory, corrective action shall be taken as directed, and at the discretion of the Engineer additional retention will be withheld from the progress payment until corrective action has been completed.

1.3.5 Fire Prevention

Cutting or welding will be permitted only in areas that are, or have been made, fire safe.

1.3.6 Record-keeping/Reporting Requirements

On all contract operations, the Contractor shall be responsible for recording and reporting all accident exposure and experience incident to the work. (This includes exposure and experience of the Contractor and their subcontractor(s)). As a minimum, these records shall include exposure work-hours and a log of occupational injuries and illnesses. (OSHA Form 200 or state equivalent as prescribed by 29 CFR 1904.5). Reference EM 385-1-1, 02.A.02.

1.3.7 Accident Reporting

As part of the requirements for reporting accidents in accordance with EM 385-1-1, Section 2, the Contractor will submit at the 50% point and 100% of project completion, a written summary of worker's compensation claims filed by workers on the project. The report shall
include all subcontractors. The main report covering the Contractor claims shall be certified as "correct and true" by the Contractor's compensation insurance carrier. The same certification shall be required for subcontractor reports.

1.3.8 Interim Changes to EM 385-1-1:

1.3.8.1 Page 41, Section 05.A.08, replace with the following:

"05.A.08 - Protective footwear, such as rubber boots, protective covers, and steel-toed safety boots, shall be worn by all persons exposed to hazards to the feet (including, but not limited to impact, puncture, slipping, electrical, or chemical hazards)."

a. For all activities in which Owner or Contractor personnel or official visitors are potentially exposed to foot hazards, the applicable job/activity hazard analysis, accident prevention plan, or project safety plan shall include an analysis of, and prescribe specific protective measures to be enforced for, foot hazards.

b. Footwear providing protection against impact and compressive forces, conduction hazards, electrical hazards, and sole puncture shall meet the applicable requirements of ASTM F 2412 and ASTM F 2413.

1.3.9 Security

The location of work may be particularly subject to vandalism. Materials left on-site are done so at the Contractors' risk, and if lost, at the Contractor's expense. The Contractor is responsible for security for all the work. The Contractor shall construct and maintain the signs, including but not limited to, those necessary for Public Safety and Traffic Control, as specified in Section 6 of the General Provisions. The Contractor shall replace those signs damaged or destroyed due to vandalism at no additional expense to the Owner.

PART 2 PRODUCTS
Not used

PART 3 EXECUTION
Not used

- End of Section 01510 -
PHASE 4 FEATHER RIVER LEVEE REPAIR
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

Please pardon our construction activities while we complete the

TOE ACCESS CORRIDOR IMPROVEMENT PROJECT

The Project is financed under the California Disaster Preparedness and Flood Prevention Bond Act of 2006 and the California Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Act of 2006, State-Federal Flood Control System Modification Program (Early Implementation Projects), administered by State of California, Department of Water Resources.

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

CAUTION!
HARD HATS MUST BE WORN IN CONSTRUCTION AREAS AT ALL TIMES

CAUTION!
ORCHARD ROAD CLOSED FOLLOW DETOUR SIGNS

Project Sign

Hard Hat Sign

Orchard Road Closure Sign
PART 1 GENERAL

1.1 SCOPE

The work covered by this Section consists of furnishing all plant, labor, equipment, and materials and of performing all operations in connection with the segregation and disposal of all waste material in accordance with the Specifications and applicable drawings. Waste materials include, but are not limited to, pavement materials, demolition materials, excavated debris or drainage structures, ordinary waste and trash, and excess construction materials.

1.2 OWNER POLICY

Owner policy is to apply sound environmental principles in the design, construction, and use of facilities. As part of the implementation of that policy, the Contractor shall: (1) practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse.

1.3 MANAGEMENT

The Contractor shall take a proactive, responsible role in the management of construction and demolition waste and require all subcontractors, vendors, and suppliers to use similar management practices. Construction and demolition waste includes: products of demolition or removal, excess or unusable construction materials, packaging materials for construction products, and other materials generated during the construction process but not incorporated into the work. In the management of waste, consideration shall be given to the availability of viable markets, the condition of the material, the ability to provide the material in suitable condition and quantity acceptable to available markets, and time constraints imposed by internal project completion mandates. The Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling of waste. Revenues or other savings obtained for salvage or recycling shall be retained by the Contractor. Firms and facilities used for recycling, reuse, and disposal shall be appropriately permitted for the intended use to the extent required by federal, state, and local regulations.

1.4 PLAN

A waste management plan shall be submitted within 15 Calendar Days after Notice To Proceed and prior to initiating any site preparation work. The plan shall include the following:

a. Name of individuals on the Contractor's staff responsible for waste prevention and management.

b. Actions that will be taken to reduce solid waste generation.
c. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas and equipment to be used for processing, sorting, and temporary storage of wastes.

d. Characterization, including estimated types and quantities, of the waste to be generated.

e. Name of landfill and/or incinerator to be used and the estimated costs for use, assuming that there would be no salvage or recycling on the project.

f. Identification of local and regional reuse programs including non-profit organizations such as: schools, local housing agencies, and organizations that accept used materials such as materials exchange networks and Habitat for Humanity.

g. List of specific waste materials that will be salvaged for resale, reused, or recycled. Recycling facilities that will be used shall be identified.

h. Identification of materials that cannot be recycled/ reused with an explanation or justification.

1.5 RECORDS

Records shall be maintained to document the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. The records shall be made available to the Engineer during construction, and a copy of the records shall be delivered to the Engineer upon completion of the construction.

1.6 COLLECTION

The necessary containers, bins, and storage areas to facilitate effective waste management shall be provided and shall be clearly and appropriately identified. Recyclable materials shall be handled to prevent contamination of materials from incompatible products and materials and shall be separated by one of the following methods:

1.6.1 Source Separated Method

Recyclable waste products and materials shall be separated from trash and sorted into appropriately marked separate containers and shall be transported to the respective recycling facility for further processing.

1.6.2 Co-Mingled Method

Waste products and recyclable materials shall be placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed.

1.6.3 Other Methods

Other methods proposed by the Contractor may be used when approved by the Engineer.
1.7 DISPOSAL

Except as otherwise specified in other sections of the Specifications, disposal shall be in accordance with the following:

1.7.1 Reuse

First consideration shall be given to salvage for reuse since little or no re-processing is necessary for this method and less pollution is created when items are reused in their original form. Sale or donation of waste suitable for reuse shall be considered. Salvaged materials, other than those specified in other sections to be salvaged and reinstalled, shall not be used in this project.

1.7.2 Recycle

Waste materials that are not suitable for reuse, but are recyclable, shall be recycled whenever economically feasible.

1.7.3 Waste

Materials with no practical use or economic benefit shall be disposed at a landfill or incinerator.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

-- End of Section --
SECTION 01780A
CLOSEOUT SUBMITTALS

PART 1   GENERAL

1.1   SUBMITTALS

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

1.1.1   As-Built Drawings

Drawings showing final as-built conditions of the project. The final CADD as-built drawings shall consist of one set of electronic CADD drawing files in the specified format, one set of mylar drawings, 2 sets of blue-line prints of the mylars, and one set of the approved working as-built drawings.

1.1.2   As-Built Record of Equipment and Materials

Two copies of the record listing the as-built materials and equipment incorporated into the construction of the project.

1.1.3   Operations and Maintenance Manuals

As specified in Section 5-8 of the General Provisions and the Specifications.

1.2   PROJECT RECORD DOCUMENTS

1.2.1   As-Built Drawings

This paragraph covers as-built drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working as-built drawings" and "final as-built drawings" refer to Contract Drawings which are revised to be used for final as-built drawings.

1.2.1.1   Owner Furnished Materials

One set of the Issued-for-Construction electronic CADD files in the specified software and format will be provided by the Owner at the preconstruction conference.

1.2.1.2   Working As-Built and Final As-Built Drawings

The Contractor shall revise 2 sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. These working as-built marked drawings shall be kept current on a weekly basis and at least one set shall be available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. Final as-built drawings shall be prepared after the completion of each definable feature of work as listed in the Contractor
Quality Control Plan (foundations, utilities, etc., as appropriate for the project). The working as-built marked prints and final as-built drawings will be jointly reviewed for accuracy and completeness by the Engineer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working and final as-built drawings as specified herein, the Engineer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings. This monthly deduction will continue until an agreement can be reached between the Engineer and the Contractor regarding the accuracy and completeness of updated drawings. The working and final as-built drawings shall show, but shall not be limited to, the following information:

a. The actual location, kinds, and sizes of all sub-surface utility lines and irrigation lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes, and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.

b. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

c. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

d. The topography, invert elevations, and grades of drainage installed or affected as part of the project construction.

e. Changes or modifications which result from the final inspection.

f. Where contract drawings or specifications present options, only the option selected for construction shall be shown on the final as-built prints.

g. If borrow material for this project is from sources on Owner property, or if Owner property (or property that Owner has obtained easement for) is used as a soil disposal area, the Contractor shall furnish a contour map of the final borrow area and disposal area elevations.

h. Systems designed, enhanced or modified in any way by the Contractor, such as irrigation systems.

i. Modifications (change order price shall include the Contractor's cost to change working and final as-built drawings to reflect modifications) and compliance with the following procedures.

1. Directions in the modification for posting descriptive changes shall be followed.

2. A Modification Circle shall be placed at the location of each deletion.
(3) For new details or sections which are added to a drawing, a Modification Circle shall be placed by the detail or section title.

(4) For minor changes, a Modification Circle shall be placed by the area changed on the drawing (each location).

(5) For major changes to a drawing, a Modification Circle shall be placed by the title of the affected plan, section, or detail at each location.

(6) For changes to schedules, a Modification Circle shall be placed either by the schedule heading or by the change in the schedule.

(7) The Modification Circle size shall be 1/2 inch diameter unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for crowded areas.

1.2.1.3 Drawing Preparation

The as-built drawings shall be modified as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints and by adding such additional drawings as may be necessary. The working as-built marked prints shall be neat, legible and accurate. These drawings are part of the permanent records of this project and shall be returned to the Engineer after approval by the Owner. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Owner.

1.2.1.4 Computer Aided Design and Drafting (CADD) Drawings

Only personnel proficient in the preparation of CADD drawings shall be employed to modify the contract drawings or prepare additional new drawings. Additions and corrections to the contract drawings shall be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols shall be the same as the original line colors, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final as-built drawings shall be identical to that used on the contract drawings. Additions and corrections to the contract drawings shall be accomplished using CADD files. The Contractor will be furnished "as-designed" drawings in electronic format. The Contractor shall be responsible for providing all program files and hardware necessary to prepare final as-built drawings. The Engineer will review final as-built drawings for accuracy and the Contractor shall make required corrections, changes, additions, and deletions.

a. CADD colors shall be the "base" colors of red, green, and blue. Color code for changes shall be as follows:

   (1) Deletions (red) - Deleted graphic items (lines) shall be colored red with red lettering in notes and leaders.
(2) Additions (Green) - Added items shall be drawn in green with green lettering in notes and leaders.

(3) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes shall be in blue.

b. The Contract Drawing files shall be renamed in a manner related to the contract number as instructed in the Pre-Construction Conference. Marked-up changes shall be made only to those renamed files. All changes shall be made on the layer/level as the original item. There shall be no deletions of existing lines; existing lines shall be over struck in red. Additions shall be in green with line weights the same as the drawing. Special notes shall be in blue on layer #63.

c. When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the Contractor in letters at least 3/16 inch high. All other contract drawings shall be marked either "As-Built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. Original contract drawings shall be dated in the revision block.

d. As-built drawings created from existing Contract Drawings shall be drawn and plotted at the same scale as the Contract Drawings. New as-built drawings or details created for work not shown on the Contract Drawings shall be drawn and plotted to a similar engineering scale as the Contract Drawings or as approved by the Engineer. As-built drawings will typically be plotted as 24 inch by 36 inch sheets, but drawings must be legible when printed at half size. Drawings shall clearly display a scale bar, and where applicable, drawings shall include the date that survey was performed.

e. Within 10 Calendar Days after Engineer approval of all of the working as-built drawings for a phase of work, the Contractor shall prepare the final CADD as-built drawings for that phase of work and submit two sets of blue-lined prints of these drawings for Engineer review and approval. The Engineer will return one set of prints annotated with any necessary corrections. Within 7 Calendar Days the Contractor shall revise the CADD files accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Engineer. No later than 10 Calendar Days before the pre-final inspection for all phases of work, the Contractor shall submit the final as-built drawing package for the entire project. The submittal shall consist of one set of electronic files, one set of mylars, two sets of blue-line prints and one set of the approved working as-built drawings. They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Owner. Any transactions or adjustments necessary to accomplish this are the responsibility of the Contractor. The Owner reserves the right to reject any drawing files it deems incompatible with the Owner’s CADD system. Paper prints, drawing files and storage media submitted will become the property of the Owner upon final approval. Failure to submit final as-built drawing files and marked prints as specified shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

1.2.2 As-Built Record of Equipment and Materials
The Contractor shall furnish one copy of preliminary record of equipment and materials used on the project 15 Calendar Days prior to final inspection. This preliminary submittal will be reviewed and returned 2 Calendar Days after final inspection with Owner comments. Two sets of final record of equipment and materials shall be submitted 10 Calendar Days after final inspection. The designations shall be keyed to the related area depicted on the contract drawings. The record shall list the following data:

**RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA**

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
<th>Manufacturer and Catalog, Model, and Serial Number</th>
<th>Composition and Size</th>
<th>Where Used</th>
</tr>
</thead>
</table>

1.2.3 Final Approved Shop Drawings

The Contractor shall furnish final approved project shop drawings 30 Calendar Days after transfer of the completed facility.

1.2.4 Construction Contract Specifications

The Contractor shall furnish final as-built construction contract specifications, including modifications thereto, 30 Calendar Days after transfer of the completed facility.

1.3 OPERATION AND MAINTENANCE MANUALS

Operation manuals and maintenance manuals shall be submitted as specified in the General Provisions and the Technical Specifications, but no later than 30 Calendar Days prior to Final Acceptance. Operation manuals and maintenance manuals provided in a common volume shall be clearly differentiated and shall be separately indexed and shall include all warranty information and certificates.

**PART 2 - PRODUCTS**

Not Used

**PART 3 - EXECUTION**

Not Used

- End of Section 01780A -
DIVISION 2 – SITE WORK
PART 1   GENERAL

1.1   SCOPE

Mobilization includes but is not limited to:

- Moving personnel, equipment, supplies, and incidentals to the project site.
- Establishing all facilities necessary for work on the project including haul roads, staging areas, and temporary facilities and equipment as specified in Section 01500A, TEMPORARY CONSTRUCTION FACILITIES.
- Performing all other work and operations required prior to beginning work on the various Contract items on the project site including, but not limited to, preparing preconstruction submittals; obtaining all applicable permits from federal, state, and local authorities; and obtaining permissions from landowners, as required.

Demobilization shall consist of work and operations necessary to disband all mobilized items.

1.2   STAGING AREAS

1.2.1   Facility Siting

Contractor’s Mobilization/Demobilization Work Plan shall detail his proposed staging, lay down, and equipment fueling and maintenance areas. By making the requested sites available to the Contractor, the Owner, the Engineer, the County of Yuba, and any other person or agency connected with the properties shall in no way be responsible or liable for any activity of the Contractor, Subcontractors, or any individual or organization connected with the project. Facility sites must be near the project and the Contractor must make all arrangements including but not limited to clearance of non-sensitive archeological and environmental sites for their use at the Contractor’s expense and must be approved by the Owner prior to use.

1.2.2   Fencing

All staging areas used by the Contractor shall be enclosed by temporary chain-link fence with a minimum height of 6 feet.

1.2.3   Restoration of Owner-Provided Staging Areas and Other Construction Areas

Prior to occupying any staging areas or other areas to be used by the Contractor during construction and for which Owner has provided or arranged access for Contractor, Contractor shall conduct topographic and photographic surveys of said areas. Topographic and photographic surveys shall be performed before any construction activities begin and again at the completion of construction. Upon completion of work, the Contractor shall restore the areas back to their pre-construction condition or better as determined by the Engineer. The Owner must approve final restoration of the staging areas and other areas used by the Contractor for which Owner has provided access.
1.2.4 Security

The Contractor shall be responsible for furnishing all labor, equipment, supplies, and materials necessary to establish, maintain, and provide security of the staging areas and the project site for the duration of the project.

1.3 SPECIAL REQUIREMENTS

Contractor shall comply with all other applicable provisions of the General Provisions and Special Provisions. If construction of ramps, berms, or other features is necessary, the Contractor shall be responsible for the importation and disposal of such material and the restoration of the site to its original condition.

1.3.1 Flooding

In the event of potential flooding of the site and at the direction of the Engineer, the Contractor shall remove all vehicles and other mobile equipment, fuels, and soluble materials within four (4) hours of notification.

1.3.2 Site Grading

If site grading is performed at the staging area, the site shall be restored at completion of work in accordance with one of the following:

a) Restored to original grade.

b) Restored in accordance with a Contractor-proposed plan approved by the Engineer.

1.4 SUBMITTALS

1.4.1 Mobilization/Demobilization Work Plan

Before starting the work, the Contractor shall submit to the Engineer a plan identifying his requirements for space for temporary structures, location and approximate size of mobile and stationary equipment, and storage of materials. A proposed plan and layout for all temporary offices, sanitary facilities, storage buildings, storage yards, equipment fueling, maintenance and storage, temporary water service and distribution, and temporary power service and distribution shall be included.

Should the Contractor require space in addition to that available on-site, the Contractor shall make arrangements for storage of materials and equipment in locations off the construction site at the Contractor’s own expense.

1.4.2 Pre-Construction Topographic and Photographic Surveys of Staging Areas and Other Construction Areas

Submit prior to starting work.
PART 2   PRODUCTS

2.1   NOT USED

2.2   MATERIAL STORAGE

Provide shelters at site as required for material storage for protection against the elements, theft or other damage. The shelters shall be of sufficient size and arranged or partitioned to provide security for their contents and provide ready access for inspection and inventory.

2.2.1   Subcontractors' Storage

Subcontractors may provide temporary buildings or shelters for storage and protection of their materials.

2.3   DRINKING WATER

Provide drinking water for all personnel connected with the work; transport bottled water in such a manner as to keep it clean and fresh. Serve from single service containers with paper cups or sanitary drinking fountains.

2.4   WATER FOR CONSTRUCTION PURPOSE

Provide clean, potable or non-potable water as required for the work. At completion, disconnect temporary connections from site. Existing hydrants and water lines shall be protected-in-place except where specified to be removed.

2.5   TEMPORARY TOILETS

Provide adequate chemical toilet facilities for all individuals connected with the work, in number as required by Federal and State Safety and Occupational Standards. Keep in sanitary condition. Remove at completion of construction and disinfect premises.

2.6   ELECTRICAL LIGHT AND POWER

Provide temporary light and power service as required for the work and to prevent vandalism. Provide safety switches and wiring into buildings and all required extension cords, lighting outlets, power outlets (grounded type), lamps and other equipment and accessories necessary for adequate temporary lighting and power for construction purposes. Remove temporary lighting and power and their connections at completion of the work.

2.7   SITE CLEANUP AND DISPOSAL OF RUBBISH

Maintain the construction site and building areas in a neat, orderly condition throughout the duration of this Contract. Remove from the site all rubbish, debris, and materials not to be incorporated into the work and all other accumulations that may result from work under this Contract on a daily basis.

2.8   BARRICADES AND PROTECTION
Provide barricades, temporary fencing, handrails, shoring and other devices required by law and as necessary to protect new construction and materials and to protect all persons on the Job site.

PART 3 EXECUTION

3.1 REQUIREMENTS

The Contractor shall furnish, install, service and maintain for the duration of the project the personnel, material, and equipment as described in this Section.

3.1.1 Codes

All facilities installed under this Section shall meet the requirements of all applicable codes.

3.2 PROJECT ACCESS

Access to the project shall be from the locations shown on the Drawings. No access to the project shall be available from barges, boats or other water floating vessels.

- End of Section -
PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all equipment, labor, materials, and incidentals, and performing all operations necessary for performing demolition in accordance with these Specifications and applicable Drawings.

Items identified for demolition include, but are not limited to:

A. Residences, sheds, out buildings and other structures as shown on the Drawings.
B. Fencing as shown on the Drawings.
C. Piles of broken concrete and asphalt, miscellaneous metal debris, and wood poles.
D. Wood chippings and mulch.
E. Concrete slab as shown on the Drawings.
F. Abandoned cars, trucks, and campers.
G. Abandoned utility poles
H. Irrigation piping west of the planned new fence line.
I. Other miscellaneous debris and garbage.

1.2 SUBMITTALS

1.2.1 General

In accordance with Section 01330, Submittal Procedures, submit data for approval by the Engineer for the following items required by this Section at least three weeks prior to the start of work outlined in this Section, unless otherwise indicated herein.

1.2.2 Demolition and Disposal Plan

The plan shall consist of description of the procedures proposed to accomplish the work, including:

- Provisions for safe conduct of the work, including procedures and methods to provide necessary supports, lateral bracing and shoring when required, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, coordination with other work in progress, timely disconnection of utility services, and dust and spill control. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations.

- Procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, including a summary of proposed disposal facilities that will be used for each type of material.

- A disconnection schedule for utility services.
• Detailed plan for removal of abandoned utility pole adjacent to the UPRR crossing, including coordination with UPRR, method of pole removal, and method of backfilling the hole with concrete.

• All disposal, reuse, or salvage of facilities must be approved by the Owner prior to the start of work.

1.2.3 Closeout

After demolition and disposal is completed, provide a written statement signed by an officer of the Contractor’s firm indicating that materials from demolition activities were disposed of or salvaged in accordance with this section and applicable local, state, and federal laws. Include supporting documentation as required by the Engineer.

1.2.4 Asbestos and Lead Paint Survey and Abatement Quote

Submit results of the asbestos and lead paint survey and abatement quote at least two weeks in advance of any demolition of structures, utilities, and other features known to potentially contain asbestos or lead paint as required by Article “Asbestos and Lead Paint Survey and Abatement Quote” below. The survey results and abatement quote shall include the name and license number of the asbestos and lead paint survey and abatement subcontractor.

1.3 PHASE I ENVIRONMENTAL ASSESSMENT

A Phase I Environmental Site Assessment has been performed for the project site. A copy of the conclusions and recommendations of the report is included in the Information for Bidders. The recommendations contained in the report for waste identification, management, and disposal are incorporated by reference as requirements of this section.

1.4 GENERAL REQUIREMENTS

Do not begin demolition until authorization is received from the Engineer. Remove rubbish and debris from the project site and do not allow accumulation of such material. The work includes demolition, salvage of identified items and materials, and removal of resulting rubbish and debris. Contractor shall demolish existing items as shown on the Drawings and as indicated by the Engineer. Rubbish and debris shall be removed from the project site daily, unless otherwise directed, to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas approved by the Engineer in a manner that prevents dispersal of the materials. In the interest of conservation, salvage shall be pursued to the maximum extent possible; salvaged items and materials shall be disposed of as specified.

1.5 REGULATORY AND SAFETY REQUIREMENTS

Comply with federal, state, and local regulations for demolition operations, hauling and disposal.
1.6 DUST AND DEBRIS CONTROL

Prevent the spread of dust and debris to adjacent areas and properties and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, flooding or pollution. Sweep pavements as often as necessary for safety and to control the spread of debris.

1.7 PROTECTION

1.7.1 Traffic Control Signs

Where pedestrian and driver safety is endangered in the area of demolition work, use traffic barricades. Anchor barricades in a manner to prevent displacement. Notify the Engineer prior to beginning such work.

1.7.2 Existing Work

Before beginning any demolition work, the Contractor shall survey the site and examine the Drawings and Specifications to determine the extent of the work and to notify the Engineer of conditions or existing facilities not previously identified. The Contractor shall take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Owner or adjacent landowners; any damaged items shall be repaired or replaced as approved by the Engineer.

1.7.3 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. The Contractor shall ensure that no elements determined to be unstable are left unsupported and shall be responsible for placing and securing bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.7.4 Protection of Personnel

During the demolition work the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site. No element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

1.8 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.9 USE OF EXPLOSIVES
Use of explosives will not be permitted.

PART 2 PRODUCTS
Not used

PART 3 EXECUTION

3.1 EXISTING FACILITIES AND MATERIALS TO BE REMOVED

3.1.1 Structures

Existing structures designated for demolition shall be completely removed including foundations and buried utilities. Excavations required for demolition of below grade structures or voids or depressions left from below grade structure removal shall be backfilled in accordance with Section 02315 EXCAVATION AND SITE PREPARATION.

3.1.2 Utilities and Related Equipment

Remove existing utilities associated with structures to be removed and terminate removals in a manner conforming to the nationally recognized code and utility company requirements covering the specific utility and approved by the Engineer. Where structures or utilities are designated for demolition, coordinate with and request service termination from appropriate utility companies prior to demolition of structure and associated utilities. Contractor shall coordinate with Engineer and utility company to determine extent of utility removal prior to demolition. When utility lines are encountered that are not indicated on the Drawings, the Engineer shall be notified prior to further work in that area. Remove meters and related equipment and deliver to a location in accordance with instructions of the Engineer.

Protect in place all power poles and overhead and underground utility lines unless specifically associated with structure or utility removal. Maintain power service to all residential and agricultural wells. Contractor shall obtain Engineer approval prior to demolition of existing utilities. Contractor will be held responsible for any damage or interruption of service to underground or overhead utilities to remain.

3.1.3 Abandoned Utility Pole Removal

A. Coordinate removal of utility poles with UPRR prior to beginning work.

B. Remove poles above and below ground in their entirety. In no case shall wood pole material be left in place.

C. After pole is removed, remove all loose material from hole.

D. Backfill hole with concrete to within one-foot of existing ground.

E. Backfill upper one foot of hole with Type 3 material. Tamp Type 3 backfill so that it is at least as firm as the adjacent ground surface.
3.1.4 Not Used

3.1.5 Not Used

3.1.6 Household Hazardous Materials

Prior to general demolition, remove all containers of hazardous materials and storage tanks from the structures.

3.1.7 Septic Tanks and Leach Fields – Not Used

3.1.8 Wells

Retain and protect all water wells, including the pump, piping, electrical panel, and ancillary equipment.

3.1.9 Contaminated Soil Disposal

Include contingency procedures and disposal facilities for contaminated soil that may be encountered during demolition work.

3.1.10 Asbestos and Lead Paint Survey and Abatement Quote

The Contractor shall have an asbestos and lead paint survey performed by a subcontractor licensed to conduct asbestos and lead paint surveys and abatement work and the results submitted at least two weeks before demolition of any structure is performed. The survey shall include a price quote for removal and disposal at a licensed facility of asbestos-containing material in accordance with applicable regulations. The survey shall include all structures, utilities, and other facilities that are known to potentially contain lead asbestos.

3.2 DISPOSITION OF MATERIAL

3.2.1 Title to Materials

Except where specified in other sections, all materials and equipment removed and not reused or the property of adjacent landowners shall become the property of the Contractor and shall be removed from the project. Title to materials resulting from demolition and materials and equipment to be removed is vested in the Contractor upon approval by the Engineer of the Contractor’s demolition and removal procedures and authorization by the Engineer to begin demolition. The Owner or adjacent landowners will not be responsible for the condition or loss of, or damage to, such property after contract award. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

3.2.2 Reuse of Materials and Equipment

Remove and store materials and equipment indicated by Engineer to be reused or relocate to prevent damage, and reinstall as the work progresses.
3.2.3 Salvaged Materials and Equipment

Remove materials and equipment that are indicated by the Engineer to be removed by the Contractor but that are to remain the property of the Owner or adjacent landowners. Deliver these materials and equipment to a storage site as directed by the Engineer.

Contractor shall salvage items and material to the maximum extent possible.

Material salvaged for the Contractor shall be stored as approved by the Engineer and shall be removed from the project site before completion of the contract. Material salvaged for the Contractor shall not be sold on the site.

Salvaged items to remain the property of the Owner shall be removed in a manner to prevent damage and shall be packed or crated to protect the items from damage while in storage or during shipment. Items damaged during removal or storage shall be repaired or replaced to match existing items. Containers shall be properly identified as to contents.

3.2.4 Debris and Rubbish

Debris and rubbish shall be removed from excavations. Debris shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

-- End of Section 02220 --
PART 1   GENERAL

1.1   SCOPE

The work covered by this section consists of furnishing all equipment, labor, materials, and incidents, and performing all operations necessary for the following:

A. Clearing and grubbing of trees within areas required for toe access corridor improvement, berm construction, and on the landside levee slope within the area of work.

B. Stripping areas required for toe access corridor improvement, berm construction, and construction of ancillary facilities.

C. Removal of existing drainage features, irrigation piping, structures, and unsuitable materials within the right-of-way of berms and toe access corridors.

D. Proof compaction and observation of toe access corridor fill and berm foundations, over-excavation or treatment of soft foundation zones, and approval of foundations.

E. Backfilling excavations resulting from grubbing.

F. The removal and disposal of cleared, grubbed, stripped, and excavated materials not suitable for reuse.

G. Placement of owner-supplied concrete blocks and contractor-procured concrete blocks as shown on the Drawings.

1.1.1  Sequence

A. All clearing and grubbing work, including backfilling of holes created by stump and root removal, shall be completed at least 300 feet in advance of stripping. If growth of trees or other vegetation occurs after clearing and grubbing and before stripping or fill placement, clear and grub areas of growth prior to fill placement.

B. All stripping work shall be completed at least 300 feet in advance of fill placement.

C. All proof compaction, other foundation preparation, and backfilling shall be completed at least 300 feet in advance of fill placement.

D. Concrete blocks shall be placed as shown on the Drawings and as described below.

1.2   DEFINITIONS
1.2.1 Clearing

Clearing shall consist of the removal and satisfactory disposal of all above ground and below ground trees, other vegetation higher than 3 inches above the ground surface, downed timber, snags, slash, brush, garbage, trash, debris, fencing, and other items in the designated areas to be cleared.

1.2.2 Grubbing

Grubbing shall consist of the removal and satisfactory disposal of stumps, roots, and matted roots from the designated grubbing areas. Grubbing also includes filling of all holes and depressions which result from the removal of stumps, roots, and matted roots below the depth where stripping is required.

1.2.3 Stripping

Stripping shall consist of the removal and satisfactory disposal of crops, weeds, grass, and other vegetative materials to the ground surface and removal and satisfactory disposal of soil containing roots and other organic matter to the deeper of the minimum depth shown on the Drawings or the depth required to remove all roots.

1.2.4 Embankment

The term "embankment" in this Section is defined as the earth fill portions of toe access corridor improvements, berm construction, and other fills and backfills required to complete the Work.

1.2.5 Embankment Foundation

The term "embankment foundation" as used in these specifications is defined as the material and surface on which earth fills, including those required for toe access corridor improvements and berms, will be placed.

1.2.6 Excavation

Excavation shall consist of removal of material to the lines and grades shown on the Drawings, or as otherwise directed or approved by the Engineer.

1.3 SUBMITTALS

1.3.1 General

In accordance with Section 01330, Submittal Procedures, submit data for approval by the Engineer for the following items required by this Section at least three weeks prior to the start of work outlined in this Section, unless otherwise indicated herein. Upon prior approval of the Engineer, submittals listed below may be combined.

1.3.2 Qualifications

A. Resumes for project manager, site superintendent, and other key staff.
B. Qualifications, certifications, and key staff for commercial testing laboratory or engineering firm that will perform material sampling, testing, and inspection.

1.3.3 Operation Plan

Provide narrative and drawings depicting the means and methods of performing work, including, but not limited to:

A. Temporary site infrastructure, including equipment laydown and staging areas; temporary utilities; construction water source; sizes and locations of haul roads and temporary ramps.

B. Provide detailed schedule and accompanying narrative text that describes the construction sequencing for all temporary and permanent features.

C. If used, submit detailed shoring, sheeting, and bracing plan for any excavation so supported. The plan for shoring, sheeting and bracing shall be prepared and certified by a licensed professional engineer. The plan shall include drawings and design computations of the proposed shoring, sheeting, and bracing; and documentation showing details of the coordination and approval of shoring, sheeting, and bracing by the applicable parties.

1.3.4 Borrow Area Plan

A. Identification of borrow areas to be used.

B. Plan for moisture-conditioning the soil.

C. Results of chemical testing for environmental contamination, as specified in the Special Provisions.

1.3.5 Excavation Plan

A. Proposed methods for preventing interference with or damage to existing underground and overhead utility lines (including PG&E buried gas pipeline), trees designated to remain, and other man-made facilities and natural features designated to remain within or adjacent to the construction rights-of-way. For buried gas pipeline, include PG&E notification contacts, method for locating pipeline prior to excavation, method for excavating around pipeline, description of pipeline support during excavation, and methods for protecting the pipeline during culvert backfill.

B. Provision for coordinating the work with property owners and other Contractors working in the construction rights-of-way or on facilities crossing or adjacent to this work.

C. The proposed methods for controlling surface and ground water in required excavations.
D. Locations of proposed material stockpiles, stockpile heights, slopes, limits, and drainage around the stockpile areas.

E. A complete listing of major equipment used for excavating, and transporting the excavated material and equipment used for compacting and proof-rolling the embankment foundations.

F. Proposed access and haul road pattern and plan for implementing dust control measures.

1.3.6 Surveys: The following surveys shall be conducted and submitted for the purpose of establishing preconstruction conditions and post-construction restoration requirements.

A. If portions of the existing levee or levee ramps are proposed for use as access or haul roads, a profile of the portions proposed for use shall be surveyed and submitted to the Engineer at least two weeks prior to first use and at work completion as specified in Section 01500 TEMPORARY FACILITIES.

B. Photographic and topographic surveys of existing access roads and staging areas proposed for use shall be submitted to the Engineer at least two weeks prior to first use and at work completion as specified in Section 01500 TEMPORARY FACILITIES.

1.3.7 Quality Control: Submit test results within 24 hours of test or measurement performance.

A. Soil classification test results, moisture-density curves, gradation curves, and laboratory results of the tests for the proposed borrow materials as required by Section 02331 Embankment Construction.

B. Results of field compaction control testing.

C. Results of moisture content control testing including the results of failed tests and corrective actions taken.

D. Line and grade measurements confirming clearing, stripping, and backfill limits.

1.4 GENERAL CONDITIONS

1.4.1 Lines and Grades

The embankment foundation, other required excavations, and backfills shall be constructed to the lines, grades, and cross sections indicated on the Drawings unless otherwise directed by the Engineer. The Owner reserves the right to increase or decrease the foundation depth, foundation width, and embankment slope or to make other changes in the excavation, embankment fill, or backfill sections deemed necessary to produce a safe structure. Changes in quantities resulting from such revisions will not constitute justification for change in contract unit prices, except as provided for in the Variations in Estimated Quantities clause of Section 01270A, Measurement and Payment, in these Specifications.

1.4.2 Conduct of the Work
A. Maintain and protect all existing structures and facilities in the site preparation and excavation areas at all times until the final completion of the work. The Contractor is responsible for maintaining the stability of the existing embankment and all excavation side slopes.

B. Maintain and protect the site preparation and excavation areas in a satisfactory condition at all times until final completion and acceptance of all work under the Contract. If in the opinion of the Engineer, equipment causes rutting, quaking, heaving, cracking, or excessive deformation of the embankment foundation or backfill, the Contractor shall limit the type, load, or travel speed of the hauling equipment on the embankment foundation or backfill, and the contractor shall repair any damage to the embankment, embankment foundation, or backfill to the satisfaction of the Engineer. Any approved embankment or backfill material which is lost in transit or rendered unsuitable after being placed in the embankment foundation and before final acceptance of the work shall be replaced by the Contractor in a satisfactory manner at no additional cost to the Owner.

1.4.3 Material Sources

Material sources for fill and backfill shall be as specified in Paragraph 1.5.3 “Sources of Embankment and Backfill Materials” of Section 02331 EMBANKMENT CONSTRUCTION.

1.4.4 Haul and Access Roads

A. Haul roads shall be located and constructed as required for the Work and for safety, and will be subject to approval by the Engineer. Haul roads shall be limited to the approved existing access roads shown on the Drawings, areas within the limits of work, and any additional routes approved by the Owner or shown on the Drawings. The limits of the haul roads shall be clearly marked in the field using construction fencing or similar methods, and shall be subject to approval by the Engineer. Haul roads shall be constructed to maintain the intended traffic, be free draining, and be maintained in good condition throughout the contract period. Any haul road which crosses any creek or drainage channel shall be constructed and maintained by the Contractor so as to not flood either upstream areas by restricting stream flows or flood downstream areas by the release of any stored water in the event that the crossing fails. Haul roads constructed during the contract duration shall be removed after work is completed and the impacted area shall be restored to its preconstruction conditions. Any portions of the existing levees or levee ramps that have been used as access or haul roads shall be promptly repaired to the condition that existed prior to the project or better. Crown elevations shall be restored to the elevations determined by the pre-construction survey or higher, and the gravel surfacing shall be restored.

B. Existing access roads will be shared by landowners that use them to access parts of their properties. The Contractor shall inform landowners of safety issues, traffic patterns, and operation areas on shared haul roads and access routes on a daily basis. The method for providing the information shall be agreed between the Contractor and the landowners. Contractor shall clean and maintain the access roads in good condition at all times, and in any case, the condition of existing access roads shall never be worse than their preconstruction condition. Contractor shall apply gravel surfacing as needed to maintain trafficability by landowners, TRLIA, RD 784, the Corps of Engineers, and other third parties at all times. Contractor shall restore the access roads to
preconstruction condition or better before substantial completion of the embankments is granted.

C. All costs associated with access roads and haul roads shall be considered as a subsidiary obligation of the Contractor and incidental to Measurement and Payment items associated with the Work, and shall not be paid for separately.

D. Traffic of loaded hauling equipment along existing levees and levee ramps shall be avoided to the maximum extent practicable. When use of existing levees as haul routes cannot be avoided, the levee patrol road shall be used to route empty hauling equipment, while loaded hauling equipment shall travel on public roads or along the levee toe to the maximum extent practicable.

1.4.5 Drainage Requirements

The Contractor shall not block or restrict the flow in a natural drain, existing culvert, ditch or channel that is not scheduled to be abandoned as part of the work without obtaining prior written approval from the Engineer. This approval shall not relieve the Contractor from responsibility for any damage caused by his operation. The Contractor shall monitor the channel flow and provide sufficient free discharge areas so that conditions are not worsened upstream or downstream by possible floods during construction. Surface water shall be directed away from excavations and construction sites so as to prevent erosion and undermining of foundations. Diversion ditches, dikes, and grading shall be provided and maintained as necessary during construction. Excavated slopes and backfill surfaces shall be protected to prevent erosion and sloughing. Excavation shall be performed so that the site and the area immediately surrounding the site shall be continually and effectively drained. If private property is to be used for drainage, submit written evidence that the right has been obtained from the property owner for drainage on his property.

1.4.6 Slopes and Surcharges

Temporary excavation slopes for required excavation shall be as required for safety and shall in no case be steeper than one horizontal to one vertical or steeper than the specified finished construction slope, and shall be subject to the approval of the Engineer. This may be accomplished by benching the temporary slope so that the average slope is not steeper than the specified slope. In addition, no temporary, permanent, or construction slope shall be surcharged with excavated or stockpiled material, heavy construction equipment, or other loadings which could cause slope instability. The toe of stockpiled material shall be maintained a minimum distance back from the top of the finished excavation equal to the depth of the excavation. The maximum height of such stockpile that will not cause instability of the excavation slope shall be determined by the Contractor. Any slide or other adverse conditions caused by failure of the Contractor to maintain these conditions shall be considered the responsibility of the Contractor and remedial measures shall be at the Contractor’s expense.

1.4.7 Slides

If sliding occurs in any part of the excavations prescribed in this Section prior to final acceptance of all work under the contract, the Contractor shall repair the slide as directed by the Engineer.
1.4.8 Placement of Stockpiles near Existing Project Levee

Stockpiling of material within 50 feet from the toe of any portion of the existing levee shall be minimized to the extent feasible, and in no case shall stockpiles within 50 feet of the existing levee be higher than 5 feet as measured from the original ground surface.

PART 2 PRODUCTS

2.1 HAUL ROAD MATERIALS

Use Contractor-supplied materials consistent with required performance.

2.2 TYPES OF FILL MATERIALS

Backfill excavations with materials indicated on the Drawings and as specified in this Section and Section 02331 EMBANKMENT CONSTRUCTION.

2.3 CONCRETE BLOCKS

Concrete blocks shall be 2-feet wide x 2-feet tall x 6-feet wide concrete blocks identical to the owner-supplied concrete blocks stockpiled at the site and as provided by Bud Plant, Marysville, CA (530-742-8889) or Engineer approved equal. If sufficient quantity of 2x2x6 concrete blocks are not available, then Contractor shall substitute the deficient number of blocks with Temporary Railing (Type K) per Caltrans Standard Specification 12-3.08.

PART 3 EXECUTION

3.1 CLEARING

Clearing shall be accomplished as needed along the alignment of the toe access corridor, berm, and landside levee slope within the limits of work shown on the Drawings or required in the Specifications and as required to construct ditches, roads, haul roads, and other infrastructure. Trees, downed timber, snags, slash, brush, garbage, trash, debris, fencing and other items shall be cleared flush with the existing ground surface. Trees and vegetation designated to remain shall be protected from damage from construction operations.

3.2 GRUBBING

3.2.1 Limits of Grubbing

Grubbing shall be accomplished as needed along the alignment of the toe access corridor, berms, and landside levee slope areas within the limits of work shown on the Drawings and as required to construct ditches, roads, haul roads, and other infrastructure. Grubbing shall be accomplished to a depth of at least 3 feet below the existing ground surface and shall include removal of roots greater than 1-1/2 inches in diameter unless roots extend into or beneath the levee embankment. If roots extend into or beneath the embankment, all roots shall be removed.
3.2.2 Backfilling Holes from Grubbing Operations

Fill all holes caused by grubbing operations with Type 3 fill and as specified in paragraph "Filling of Excavations" unless otherwise shown on the Drawings or directed by the Engineer.

3.3 STRIPPING

Strip areas including landside toe access corridor, berm footprints, and other areas indicated on the Drawings. Remove all organic matter (crops, weeds, grass, roots and other vegetative materials) and topsoil to the depth indicated below or the limit of topsoil, roots and organic matter, whichever is greater.

- Minimum depth of stripping for landside toe access corridor = 6 inches
- Minimum depth of stripping for berm = 6 inches

3.4 DISPOSAL OF CLEARED, GRUBBED, AND STRIPPED MATERIAL

3.4.1 Material from Clearing and Grubbing Operations

Except as otherwise specified or indicated on the Drawings, all materials resulting from clearing and grubbing operations shall be removed from the site. In no case shall any material resulting from clearing and grubbing operations be buried or permanently placed within the levee foundation, surplus soil disposal areas, or any other fill foundation. The Contractor shall make a reasonable effort to make beneficial use of the materials resulting from clearing and grubbing. The Contractor shall, at his option, either retain any such materials of value as the Contractor’s property for his own use or dispose of them by sale or otherwise. The Owner is not responsible for the protection and safekeeping of any materials retained by the Contractor. Such materials shall be removed from the site of the work before the date of completion of the work.

3.4.2 Material from Stripping Operations

The organic material resulting from the stripping operations shall become Contractor’s property and be removed from the site.

3.5 REMOVAL AND CAPPING OF ABANDONED PIPE, CONDUITS, AND IRRIGATION FACILITIES

A. Completely remove abandoned pipes and conduits and irrigation facilities from within the limits of the new fence alignment along the landside toe access corridor, or other limits as shown on the Drawings.

B. Portions of pipes and conduits to remain in place shall be permanently capped as approved by the Engineer. Caps for pipes and conduits shall be designed and constructed to resist the full hydrostatic pressure of the irrigation system feeding the lines including pressure from potential surges.
C. Backfill excavations for removal of pipes, conduits, and irrigation facilities from within the
toe access corridors with Type 3 fill and as specified in paragraph "Filling of Excavations"
unless otherwise shown on the Drawings or directed by the Engineer.

D. Coordinate removal of irrigation facilities with adjacent landowners to prevent impact to
irrigation operations.

3.6 SHORING, SHEETING, AND BRACING

Where required, install shoring, sheeting, and bracing for the protection of existing natural
features and man-made facilities, for the safety of workers and the public, and to insure the
integrity of the embankment. Shoring, sheeting, and bracing shall be adequately designed
and properly installed to withstand anticipated loads. Shoring, sheeting, and bracing shall be
planned and designed by a registered professional engineer. The Contractor shall submit a
plan for shoring, sheeting, and bracing in accordance with paragraph SUBMITTALS. All
shoring, sheeting, and bracing shall be removed as embankment and backfill operations
progress.

3.7 DEWATERING AND DIVERSION

A. Surface and groundwater control shall be accomplished in coordination with the required
excavation and embankment construction. Methods for care of surface water and for
controlling the surface and groundwater levels shall be subject to approval of the
Engineer.

B. Maintain all excavations free of water at all times. Take care during excavation to
prevent disturbing foundations. If groundwater is encountered during excavation,
commence dewatering and provide dewatering in advance of and concurrently with
further excavation. Dewatering shall be accomplished in a manner that will prevent loss
of fine material from foundation or excavated surfaces, will maintain stability of
excavated slopes and bottoms of excavations, and will result in construction operations
being performed in conditions free of standing moisture and excess moisture that
prevents foundation preparation and fill placement as specified. Foundations shall be
free of water at the time backfill, bedding, or concrete is placed. Water control shall
continue as necessary to prevent damage to operations and finished work.

C. If suitable foundation material has been disturbed by the Contractor’s operations, has
been damaged by water, or has been removed for the Contractor’s convenience in
dewatering the foundation, the foundation shall be restored by the Contractor, at the
Contractor’s expense, to a condition at least equal to the undisturbed foundation as
determined by the Engineer. For culverts, ditches and roads the material used to
replace the damaged or removed foundation material shall be Type 4 fill, conforming to
the provisions in Section 02331 EMBANKMENT CONSTRUCTION, and shall be
compacted as required for Type 4 fill, unless the Engineer determines that a different
type of material is required to provide a suitable foundation.

3.8 EXCAVATION

3.8.1 Foundation Excavation
Foundation excavation shall consist of removal of material in preparing the foundations to the lines and grades shown on the Drawings and removal of loose, soft, wet, or otherwise objectionable materials as directed by the Engineer. Excavations shall be drained and kept dry in accordance with paragraph Dewatering and Diversion.

3.8.2 Over-Excavation

Any excavation below the depths and slopes specified herein or shown on the Drawings shall be backfilled at the Contractor’s expense to the specified permissible excavation line with similar over-excavated material or other material approved by the Engineer and compacted to a density of at least that of the surrounding firm, undisturbed, material.

3.9 CONCRETE BLOCKS

Concrete blocks shall be set on firm, stable foundation. The foundation shall be graded to provide a uniform bearing throughout the entire length of the block. Any excavation and backfill shall conform to Specification Section 02315 and 02331.

Abutting ends of concrete blocks shall be placed and maintained in alignment without substantial offset to each other, with concrete block keys and slots properly aligned.

If concrete blocks are substituted with Temporary Railing (Type K), then the Temporary Railing (Type K) shall be placed in accordance with Caltrans Standard Specification 12-3.08.

3.10 NOT USED

3.11 MAINTENANCE OF WORK

3.11.1 Debris Removal

Maintain all excavations and work surfaces free from leaves, brush, sticks, trash, and other debris until final acceptance of work under the contract at no additional cost to the Owner.

3.11.2 Sediment Removal

Prior to final acceptance of work under this contract, remove sediments from excavations and work surfaces to restore design grade and section at no additional cost to the Owner.

3.12 DISPOSAL OF EXCESS EXCAVATED MATERIALS

Material that is not suitable for reuse in embankment or fills shall be permanently disposed of at an off-site disposal facility selected by the Contractor and approved by the Engineer. The Contractor is responsible for obtaining all disposal permits and shall comply with all applicable local, state, and federal laws.

3.13 PREPARATION OF EMBANKMENT FOUNDATION AND EXCAVATION SUBGRADE
A. The sides of stump holes, removed ditches, and other depressions shall be excavated as needed for safety and to provide access for placement and compaction equipment.

B. Proof compact the embankment foundation, excavation subgrade, ditch, or depression subgrade with a minimum of 4 passes with a heavy tamping roller approved by the Engineer. Materials which cannot be compacted by roller equipment because of inadequate clearances shall be compacted with power tampers in accordance with the paragraph COMPACTION EQUIPMENT in Section 02331, EMBANKMENT CONSTRUCTION. Remove and replace any soft or disturbed material as directed by the Engineer.

C. Prior to beginning embankment placement the Contractor shall notify the Engineer that the foundation is ready to receive fill. No fill shall be placed on any area of the embankment foundation until such area has been inspected and given final approval by the Engineer.

3.14 FILLING OF EXCAVATIONS

A. Unless otherwise directed, fill each excavation as shown on the Drawings, or if not shown, with Type 3 fill as specified in 02331 EMBANKMENT CONSTRUCTION. The fill shall be placed and compacted in accordance with the applicable provisions for the specific material type in accordance with 02331 EMBANKMENT CONSTRUCTION.

3.15 FIELD QUALITY CONTROL

3.15.1 Clearing, Grubbing, and Stripping

The Contractor shall establish and maintain quality control for clearing, grubbing, and stripping operations to assure compliance with contract requirements. The Contractor shall maintain records of the quality control for all construction operations including but not limited to the items indicated below. Records of observations, approvals, measurements, inspections and tests, as well as the records of corrective actions taken, shall be furnished to the Owner in accordance with Section 01451A CONTRACTOR QUALITY CONTROL.

A. Clearing

Station to station limits; transverse clearing limits from applicable centerline; percentage of area complete; types of materials cleared.

B. Grubbing

Station to station limits; transverse grubbing limits from applicable centerline; percentage of area complete; depth of grubbing; type of material; number and record of filling of grubbed holes.

C. Stripping

Station to station limits; transverse stripping limits from applicable centerline; percentage of area complete; type of material; depth of stripping.
3.15.2 Excavation

The Contractor shall establish and maintain quality control for excavation operations to assure compliance with contract requirements and shall maintain records of the Contractor's quality control for all construction operations including but not limited to the following:

A. Lines, grades and tolerances.

B. Separation of materials into fill and unsatisfactory materials.

C. Direct placement and/or stockpiling of materials.

D. Disposal of unsatisfactory materials.

E. Conditions that may induce seepage or weaken the foundation or embankment.

F. Stability of excavations.

G. Proof rolling of foundations.

H. Scarification, moisture conditioning, and compaction of foundation surfaces.

I. Inspection of prepared foundation by Contractor and submittal to the Engineer of written recommendation for approval of prepared foundation. Recommendation shall be made on a form that clearly defines the boundaries of the prepared foundation. The format shall require approval by the Engineer.

J. Written Engineer's approval of prepared foundation prior to fill placement.

3.15.3 Fill Placement

Perform quality control for fill placement in accordance with the embankment requirements in paragraph FIELD QUALITY CONTROL of Section 02231 EMBANKMENT CONSTRUCTION.

-- End of Section 02315 --
PART 1  GENERAL

1.1  SCOPE

The work in this section consists of furnishing all plant, labor, equipment, and materials and of performing all operations in connection with the construction of embankment fill and backfill in accordance with the Specifications and Drawings.

1.1.1  Description

Fill and backfill are required for the following:

A. Landside toe access corridor improvements
B. Erosion protection berm
C. Depressions resulting from stripping and grubbing work
D. Patrol and maintenance roads
E. Miscellaneous fills and backfills

1.1.2  Overall Sequence for Toe Access Corridor Improvements

A. Provide temporary erosion control to protect the project site throughout and following the construction period in accordance with GP 10-4 and the NPDES General Permit.
B. Clear, grub, and strip areas of work as specified in Section 02315.
C. Remove and cap any abandoned pipe and conduits as specified in Section 02315.
D. Prepare and proof compact foundation surface as specified in Section 02315.
E. Construct embankment.
F. Perform final grading in all areas of fill and backfill.
G. Construct patrol road.
H. Construct chain link fence and install concrete blocks
I. Revegetate embankment slopes and other disturbed surfaces along the toe access corridor as specified on Section 02932.

1.1.3  Overall Sequence for New Berm Construction
A. Provide temporary erosion control to protect the project site throughout and following the construction period in accordance with GP 10-4 and the NPDES General Permit.

B. Strip areas of work as specified in Section 02315.

C. Prepare and proof compact foundation surface as specified in Section 02315.

D. Construct embankment fill, including filter/drain layer.

E. Perform final grading in all areas of fill and backfill.

F. Construct patrol road.

G. Revegetate embankment slopes and adjacent disturbed surfaces as specified in Section 02932 Seeding and Revegetation.

1.1.4 Overall Sequence for Culvert Installation

A. Provide temporary erosion control to protect the project site throughout and following the construction period in accordance with GP 10-4 and the NPDES General Permit.

B. Coordinate with PG&E to locate and protect existing PG&E gas pipeline.

C. Excavate existing ramp to lines and grades required for culvert installation. Provide protection and support for existing gas pipeline.

D. Install culvert and headwalls.

E. Backfill around culvert with controlled strength low permeability material (CLSM).

F. Complete culvert trench backfill.

G. Perform final grading in all areas of fill and backfill.

H. Reconstruct road surface by matching the existing surfacing materials but in any case providing not less than a 6-inch thick Type 4 aggregate base.

I. Revegetate embankment slopes and toe access corridor surfaces as specified in Section 02932 Seeding and Revegetation and replace revetment removed by the project, if any.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

STATE OF CALIFORNIA STANDARD SPECIFICATIONS

Section 26-1.02A Class 2 Aggregate Base
Section 68-1.025  Permeable Material

ASTM INTERNATIONAL (ASTM)

ASTM C 33    Standard Specification for Concrete Aggregates

ASTM D 422   Particle-Size Analysis of Soils

ASTM D 698   Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))

ASTM D 1556  Density and Unit Weight of Soil in Place by the Sand-Cone Method

ASTM D 1557  Laboratory Compaction Characteristics of Soil Using Modified Effort (30,000 ft-lbf/cu. ft. (600 kN-m/cu. m.))

ASTM D 2216  Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

ASTM D 2487  Classification of Soils for Engineering Purposes (Unified Soil Classification System)


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

ASTM D 3017  Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

ASTM D 3740  Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM D 4318  Liquid Limit, Plastic Limit, and Plasticity Index of Soils

ASTM D 4643  Determination of Water (Moisture) Content of Soil by the Microwave Oven Method

ASTM D 4751  Standard Test Method for Determining Apparent Opening Size of a Geotextile
1.3 DEFINITIONS

1.3.1 Embankment

The term "embankment" in this Section is defined as the earth fill portions of toe access corridor improvements, landside berm, and other fills and backfills required to complete the Work.

1.3.2 Foundation

The term “foundation” as used in these specifications is defined as the material and surface on which embankment fill will be placed as part of the Contract work.

1.3.3 Classification of Soils

Materials used to construct the embankments and backfills shall be classified in accordance with ASTM D 2487 (Unified Soil Classification System). Cohesionless materials shall include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are non-plastic in accordance with ASTM D 4318.

1.3.4 Degree of Compaction

Degree of compaction shall be the compacted in-place dry density expressed as a percentage of the maximum dry density obtained by the test procedure presented in ASTM D 698, if not stated otherwise, or ASTM D 1557, abbreviated hereinafter as percent of the maximum dry density.

1.3.5 Satisfactory Material

A. Satisfactory material shall consist of materials classified in accordance with ASTM D 2847 as SC, SM, SW, SP, GM, and GC free from roots and other organic matter; contamination from hazardous, toxic or radiological substances, trash and debris; and frozen materials. Not all satisfactory material can be used in embankment. Only the satisfactory materials meeting the additional or modified requirements of paragraph TYPES OF FILL MATERIALS can be used for embankment construction.

1.4 SUBMITTALS

1.4.1 General

In accordance with Section 01330, SUBMITTAL PROCEDURES, submit data for approval by the Engineer for the following items required by this Section at least two weeks prior to the
start of work, unless otherwise indicated herein. The Engineer may determine that information provided during bidding meets part of the submittal requirements. Upon prior approval of the Engineer, submittals listed below may be combined.

1.4.2 Qualifications

A. Resumes or statement of qualifications for project manager, site superintendent, quality control manager, and other key staff.

B. Qualifications, certifications, and key staff for commercial testing laboratories or engineering firms that will perform material sampling, testing, and inspection. Material sampling, testing, and inspection shall be performed by a qualified independent testing firm and not the Contractor’s personnel.

1.4.3 Operation Plan

Provide narrative description and drawings depicting the means and methods of performing work, including, but not limited to:

A. Temporary site infrastructure, including equipment laydown and staging areas; stockpile areas; temporary utilities; construction water source; sizes and locations of haul roads, temporary ramps, and temporary drainage facilities.

B. Provide detailed schedule and accompanying narrative text that describes the construction sequencing for all temporary and permanent features.

1.4.4 Embankment Plan

A. Provision for coordinating the work with property owners and other Contractors working in the construction rights-of-way or on facilities crossing or adjacent to this work.

B. The proposed borrow sources for all fill materials, including current test data that demonstrate the proposed materials meet the requirements of these specifications.

C. Proposed stockpile locations, stockpile heights, slopes, limits, and drainage around the stockpile areas.

D. A complete listing of major equipment used to excavate and transport the borrow material and to construct the embankment, including excavating, moisture-conditioning, earthmoving, placing, grading, compacting, and finish-grading equipment.

E. Proposed road pattern and plan for implementing dust control measures.

1.4.5 Appurtenances Product Data

A. Summary of products and materials that will be used for permanent appurtenances, such as gates, culverts, etc.
1.4.6 Surveys: The following surveys shall be conducted and submitted for the purpose of establishing preconstruction conditions and post-construction restoration requirements.

A. If portions of the existing levees or levee ramps that are destined to remain as part of the flood control system are proposed for use as access or haul roads, a profile of the portions proposed for use shall be surveyed and submitted to the Engineer at least two weeks prior to first use and at work completion as specified in Section 01500 TEMPORARY FACILITIES.

B. Photographic and topographic surveys of existing access roads and staging areas proposed for use shall be submitted to the Engineer at least two weeks prior to first use and at work completion as specified in Section 01500 TEMPORARY FACILITIES.

1.4.7 Weekly survey data and calculations establishing the weekly fill placement volume and cumulative total.

1.4.8 Quality Control: Test results shall be submitted with the daily report as specified in Section 01451A. Test results shall include the results of failed tests, corrective actions taken, and the results of retests.

A. Test Reports for Borrow Materials: Soil classification test results, moisture-density curves, gradation curves, Atterberg limits, aggregate quality tests, and all other laboratory results of the required tests of the proposed borrow materials. Borrow material sources will be accepted on the basis of certificates of compliance and test reports that show the materials meet the quality and grading requirements of the specifications under which it are furnished. An initial set of test reports shall be submitted at least two weeks before the materials begin to be hauled to the site. Subsequent tests shall be performed and submitted as specified in CONTRACTOR QUALITY CONTROL.

B. Results of field compaction control testing.

C. Results of moisture content control testing.

D. Line and grade measurements for quantities and locations of clearing, stripping, excavation, and embankment.

1.5 GENERAL CONDITIONS

1.5.1 Lines and Grades

The embankment, other required excavations, and backfills shall be constructed to the lines, grades, and cross sections indicated on the Drawings and to the tolerances prescribed in the Special Provisions, unless otherwise directed by the Engineer. The Owner reserves the right to increase or decrease the foundation widths and embankment slopes or to make such other changes in the embankment, other required excavation, or backfill sections as may be deemed necessary to produce a safe structure. Changes in quantities resulting from such revisions will not constitute justification for change in contract unit prices, except as provided
for in the Variations in Estimated Quantities clause of Section 01270A, Measurement and Payment, in these Specifications. The end slopes and side slopes of partial fill sections shall not be steeper than one vertical on three horizontal, except where a steeper finished embankment slope is shown on the Drawings.

1.5.2 Conduct of the Work

Maintain and protect the embankment and backfill in a satisfactory condition at all times until final completion and acceptance of all work under the Contract. If, in the opinion of the Engineer, the hauling equipment causes horizontal shear planes or slickensides, rutting, quaking, heaving, cracking, or excessive deformation of the embankment or backfill, the Contractor shall limit the type, load, or travel speed of the hauling equipment on the embankment or backfill, and the Contractor shall repair any damage to the embankment, embankment foundation, or backfill to the satisfaction of the Engineer. The Contractor may be required to remove, at his own expense, any embankment material placed outside of prescribed slope lines. Any approved embankment or backfill material which is lost in transit or rendered unsuitable after being placed in the embankment or backfill and before final acceptance of the work shall be replaced by the Contractor in a satisfactory manner and no additional payment will be made. The Contractor shall excavate and remove from the embankment or backfill any material which is unsatisfactory and shall also dispose of such material and refill the excavated area as directed, all at no cost to the Owner.

1.5.3 Haul and Access Roads

A. Haul roads shall be located and constructed as required for the Work and for safety, and will be subject to approval by the Engineer. Haul roads shall be limited to the approved existing access roads shown on the Drawings, areas within the limits of work, and any additional routes approved by the Owner or shown on the Drawings. The limits of the haul roads shall be clearly marked in the field using construction fencing or similar methods and shall be subject to approval by the Engineer. Haul roads shall be constructed to maintain the intended traffic, be free draining, and be maintained in good condition throughout the contract period. Any haul road which crosses any creek or drainage channel shall be constructed, and maintained by the Contractor so as to not flood either upstream areas, by restricting stream flows, or flood downstream areas, by the release of any stored water in the event that the crossing fails for any cause. Haul roads constructed during the contract duration shall be removed after work is completed and the impacted area restored to its preconstruction conditions. Any portions of the existing levees or levee ramps that are destined to remain as part of the flood control system and that have been used as access or haul roads shall be promptly repaired to the condition that existed prior to the project or better. Crown elevations shall be restored to the elevations determined by the pre-construction survey or higher, and the gravel surfacing shall be restored.

B. Existing access roads will be shared by landowners that use them to access parts of their properties. The Contractor shall inform landowners of safety issues, traffic patterns, and operation areas on shared haul roads and access routes on a daily basis. The method for providing the information shall be agreed between the Contractor and the landowners. Contractor shall clean and maintain the access roads in good condition at all times, and in any case, the condition of existing access roads shall never be worse than their preconstruction condition. Contractor shall apply gravel surfacing as needed.
to maintain trafficability by landowners, TRLIA, RD 784, the Corps of Engineers, and other third parties at all times. Contractor shall restore the access roads to preconstruction condition or better before substantial completion of the levee embankment is granted.

C. All costs associated with access roads and haul roads shall be considered as a subsidiary obligation of the Contractor to perform the work associated with Measurement and Payment Items, and will not be paid separately.

D. Traffic of loaded hauling equipment along existing levees and levee ramps shall be avoided to the maximum extent practicable. When use of existing levees as haul routes cannot be avoided, the levee patrol road shall be used to route empty hauling equipment, while loaded hauling equipment shall travel on public roads or along the levee toe to the maximum extent practicable.

1.5.4 Slides and Foundation Failures

When sliding occurs in any part of the embankment or backfills prescribed in this section after they have been placed, but prior to final acceptance of all work under the contract, the Contractor shall repair the slide as directed by the Engineer. When the slide is caused through the fault of the Contractor, the repair shall be made at no cost to the Owner. When the slide is not the fault of the Contractor, an equitable adjustment in the contract price shall be made in accordance with the Specifications to cover the cost of the repairs.

1.5.5. Drainage and Erosion Protection Requirements

A. The Contractor shall not block or restrict the flow in a natural drain, existing culvert, ditch, or channel that is not scheduled to be abandoned as part of the work, at any time without obtaining prior written approval from the Engineer. This approval shall not relieve the Contractor from responsibility for any damage caused by his operation. The Contractor shall monitor the channel flow and provide sufficient free discharge areas so that conditions are not worsened upstream or downstream by possible floods during construction. Surface water shall be directed away from excavations and construction sites so as to prevent erosion and undermining of foundations. Diversion ditches, dikes, and grading shall be provided and maintained as necessary during construction. Excavated slopes and backfill surfaces shall be protected to prevent erosion and sloughing. Excavation shall be performed such that the site and the area immediately surrounding the site and affecting operations at the site shall be continually and effectively drained. If private property is to be used for drainage, submit written evidence that the right has been obtained from the property owner for drainage on his property.

B. Dewatering and diversion of surface and groundwater is specified in Section 02315.

1.5.6 Placement of Stockpiles near Existing Project Levee

Stockpiling of material within 50 feet from the toe of any portion of the existing levee shall be minimized to the extent feasible, and in no case shall stockpiles within 50 feet of the existing levee be higher than 5 feet as measured from the original ground surface.
PART 2   PRODUCTS

2.1 SOURCES OF EMBANKMENT AND BACKFILL MATERIALS

A. Materials for embankment and backfill will be obtained from Contractor-supplied borrow sources.

B. Materials shall be suitable materials obtained from off-site borrow sources. All roots, limbs, and wood fragments shall be removed from embankment materials. Materials containing sod, other organic or perishable material, trash, debris, or frozen materials shall not be used in the embankment.

C. The Contractor shall submit to the Engineer the source or sources from which he intends to obtain materials for embankment construction. If a source is selected other than a commercial quarry or other commercial entity from which earth or rock material will be directly purchased, a written statement shall be provided to the Engineer indicating permission to utilize the area. It shall be the responsibility of the Contractor to obtain all Federal, State, and local permits which may be required for excavation and reclamation of the borrow area. It shall be the responsibility of the Contractor to obtain representative samples of borrow material and to perform and submit contaminant residue testing as specified in Paragraph SP-2-3 of the Special Provisions and all geotechnical tests demonstrating that the materials meet the requirements specified below.

2.2 TYPES OF FILL MATERIALS

2.2.1 Type 2 – Filter/Drain

Filter/Drain shall meet ASTM C 33 requirements for fine aggregate with the additional requirement that the percentage of fines (material passing the No. 200 sieve) shall not exceed 5% after placement and compaction.

2.2.2 Type 3 - Random Fill

Random Fill shall consist of satisfactory material with 100% passing the 2-inch sieve.

2.2.3 Type 4 - Caltrans Class 2 Aggregate Base

A. Material shall be Western Aggregates ¾-inch Class 2 Aggregate Base or Engineer-approved equal.

B. Material shall meet the requirements specified in Section 26-1.02A of the State of California Standard Specifications for 3/4-inch grading as modified below by the following requirements:
   1. The content of material finer than the No. 200 sieve shall not be greater than 7 percent by weight.
2. At least 80 percent of all particles greater than the No. 4 sieve shall classify as angular or subangular in accordance with ASTM D2488.

PART 3 EXECUTION

3.1 GENERAL

3.1.1 Foundation Approval

Prior to beginning embankment placement on an area of toe access corridor fill, berm foundation, or foundation for other fill, the Contractor shall notify the Engineer in writing that the area is ready to receive fill. No fill shall be placed on any area of the embankment, embankment foundation, or other fill area until such area has been inspected and given final approval by the Engineer.

3.1.2 Maintaining Fills and Grading

Constructed fills and grading shall be maintained to meet the requirements of this Section until final completion and acceptance of all Contract work. Maintenance of the Work shall include all measures to prevent erosion, damage by operations, and contamination. During the Work, exposed surfaces shall be protected, and if eroded, damaged, or contaminated, shall be repaired or replaced in a manner acceptable to the Engineer to meet these Specifications at no additional cost to the Owner. Repair or replacement may include removal of adjacent material meeting the Specifications as required to connect or bench new fill to existing materials.

3.2 FILL PLACEMENT AND SPREADING

3.2.1 Type 2 – Filter/Drain

Filter/drain material for horizontal drains shall be placed and spread in layers not more than 12 inches in uncompacted thickness, and drain materials for vertical/steeply sloping drains shall be placed and spread in layers not more than 8 inches in uncompacted thickness.

3.2.2 Type 3 – Random Fill

Type 3 fill material shall be placed and spread in layers not more than 8 inches in uncompacted thickness.

3.2.3 Type 4 – Caltrans Class 2 Aggregate Base

Type 4 fill material shall be placed, spread, and compacted in a single lift.

3.2.4 Gradation and Distribution

The gradation and distribution of materials shall be such that the embankment will be free from lenses, pockets, streaks, and layers of material differing substantially in texture or gradation from surrounding material. If lenses, pockets, or layers of materials differing substantially in texture or gradation from surrounding material occur in the spread material, each lens, pocket or layer shall be mixed by harrowing or any other approved method to
blend the materials. During the placing and spreading process, the Contractor shall at all times maintain a force of workers adequate to remove all roots, debris, and oversized stone from all embankment materials. All stones and rock fragments larger than 3 inches in any dimension shall be removed at the source prior to hauling the material.

3.2.5 Foundations and Partial Embankment Fills

The foundations and all partial embankment receiving fills shall be kept thoroughly drained. Fill materials shall be placed to a grade no flatter than 0.5 percent to facilitate drainage. For fill placement adjacent to the embankment side slope, fill materials shall be graded for direct drainage away from the levee embankment. Placing operations will be such as to avoid mixing of materials from adjacent sections as much as practicable.

3.2.6 Equipment Traffic

Equipment traffic on any embankment zone shall be routed to distribute the compactive effort as much as practicable. Ruts formed in the surface of any layer of spread material shall be removed or the surface smoothed before that material is compacted.

3.2.7 Smooth Surfaces

If, in the opinion of the Engineer, the compacted surface of any layer of material is too smooth to bond properly with the next layer to be placed, the surface shall be loosened by scarifying or other approved methods before material for the next layer is placed.

3.3 MOISTURE CONTROL

3.3.1 General

The materials in each layer of the fill shall contain the amount of moisture within the limits specified below or as directed by the Engineer and as necessary to obtain the required compaction. Material that is not within the specified moisture content limits during and immediately after compaction shall be reworked to obtain the specified moisture content and recompacted or replaced with fill meeting the requirements of this Section, regardless of density.

3.3.1.1 Insufficient Moisture for Suitable Bond

If the top or contact surfaces of a partial fill section become too dry to permit suitable bond with additional fill to be placed thereon, loosen the dried materials by scarifying or disking to depths directed by the Engineer, dampen the loosened material to an acceptable moisture content, and recompact the loosened material in accordance with the applicable requirements of paragraph COMPACTION.

3.3.1.2 Excessive Moisture for Suitable Bond

If the top or contact surfaces of a partial fill section become too wet to permit suitable bond with the additional fill to be placed thereon, scarify the wet material and permit it to dry (assisted by disking or harrowing if necessary) to depths directed by the Engineer or remove and replace the fill with fill meeting the requirements of this Section. Removed material shall
be dried in the borrow area or a stockpile area and reused as fill at no additional cost to Owner. The material shall be dried to acceptable moisture content, and shall be compacted in accordance with the applicable requirements of paragraph COMPACTION.

3.3.1.3 Drying Wet Material

Material that is too wet shall be dried in the borrow area or stockpile area prior to bringing to the embankment fill location. Drying shall be assisted by spreading on a drying pad and diskig or harrowing, if necessary, until the moisture content is reduced to an amount within the specified limits.

3.3.1.4 Increasing Moisture in Dry Material

The moisture content of material that is too dry will be adjusted in the borrow area or stockpile area prior to bringing to the embankment fill location. Add water to the fill material and work the moisture into the material by harrowing or other approved methods until a uniform distribution of moisture within the specified limits is obtained. If the material dries before it is compacted, the Contractor may be allowed to wet the material on the embankment if approved by the Engineer. The amount of water applied on a layer of fill on the embankment shall be accurately controlled so that free water will not appear on the surface during or subsequent to rolling. Should too much water be added to any part of the embankment, delay rolling of that section until the material dries to within the specified moisture limits or remove the wet material and replace it with material that meets the specified moisture limits. Return the removed wet material to the borrow area or stockpile area for drying and reuse elsewhere.

3.3.2 Type 2 - Filter/Drain

Filter/drain materials shall be placed and compacted in a wet condition.

3.3.3 Type 3 - Random Fill

The moisture content shall be that which will facilitate obtaining the specified compaction.

3.3.4 Type 4 – Road Surfacing

The moisture content shall be that which will facilitate obtaining the specified compaction.

3.4 COMPACTION

3.4.1 Compaction Equipment

Compaction equipment shall conform to the following requirements and shall be used as prescribed in subsequent paragraphs.

3.4.1.1 Tamping Rollers

Tamping rollers shall be suitable for constructing embankment to meet these specifications. Tamping rollers shall be equipped with cleaning fingers designed and attached to prevent the accumulation of material between the tamping feet. The cleaning fingers shall be maintained
at their full length throughout the periods of use of the roller. Tamping feet shall be maintained at a length that penetrates the entire uncompacted lift thickness. Tamping rollers shall not be operated at speeds exceeding 6 miles per hour.

If used, towed tamping rollers shall meet the following requirements:

A. The two drums comprising one roller unit shall be yoked such that they will oscillate when traversing uneven surfaces.

B. The use of a rubber-tired tractor for towing shall be discontinued if the tires leave ruts that prevent uniform compaction by the tamping roller.

3.4.1.2 Special Compactors

Compaction of material in areas where it is impracticable to use a roller or tractor compaction shall be performed by the use of approved compactors specifically manufactured for work in tight quarters and shall be subject to approval by the Engineer.

3.4.1.3 Sprinkling Equipment

Sprinkling equipment shall consist of tank trucks, pressure distributors or other equipment designed to apply water uniformly and in controlled quantities to variable widths of surfaces.

3.4.1.4 Miscellaneous Equipment

Scarifiers, disks, spring-tooth or spike-tooth harrows, spreaders, and other equipment shall be suitable for use in embankment construction and approved by the Engineer. Equipment used for blending fill material shall be capable of penetrating the full loose lift thickness of the specific material type.

3.4.2 Compaction of Type 2 – Filter/Drain

A. Horizontal Drains: Compact drainage aggregate by application to each lift of two passes of a D7 or equivalent tractor applying a track pressure of approximately 10 psi, or four passes of a 5-ton-static-weight smooth-steel-drum vibratory roller. Dozer tracks or roller drum shall be kept clean during compaction operations so as to preclude contamination of the filter and drain materials with native fine-grained soils.

B. Vertical/ Steeply Sloping Drains: Compact drainage aggregate by application to each lift of two passes of a vibratory plate compactor weighing at least 200 lbs.

3.4.3 Compaction of Type 3 – Random Fill

After a layer of material has been dumped and spread, it shall be harrowed to break up and blend the fill materials and to obtain uniform moisture distribution. Harrowing shall be performed with a heavy disk plow or other approved harrow to the full depth of the layer. If one pass of the harrow does not accomplish the breaking up and blending of the materials, additional passes of the harrow shall be required, but in no case, will more than three passes of the harrow on any one layer be required for this purpose. When the moisture content and the condition of the layer are satisfactory, the lift shall be compacted to a minimum of 97
percent of the maximum dry density in accordance with ASTM D 698 using an approved tamping roller traversing in a direction parallel to the axis of the levee. In areas which are not accessible by roller, the fill shall be placed in layers not more than 4 inches in uncompacted thickness and compacted with an approved special compactor to a density equal to a minimum of 97 percent of the maximum dry density in accordance with ASTM D 698. Placing, spreading, sprinkling, and compacting may be performed at the same time at different points along a section when there is sufficient area to permit these operations to proceed simultaneously. Compaction equipment shall be operated such that the strip being traversed by the roller shall overlap the rolled adjacent strip by not less than 3 feet.

3.4.4 Compaction of Type 4 Fill

Compact Type 4 Fill as specified in Section 26-1.05 of the State of California Standard Specifications except that relative compaction shall be not less than 95 percent of the maximum dry density in accordance with ASTM D1557.

3.4.5 Compaction Adjacent to Structures and Utilities

Heavy equipment for spreading and compacting fill shall not be operated within 4 feet of structures or utilities, except as otherwise specified herein. Material within 4 feet of structures or utilities shall be compacted using appropriate special compactors approved by the Engineer.

3.5 NOT USED

3.6 SURFACE DRAINAGE AND EROSION PROTECTION OF COMPLETED AREAS

The finished embankment areas, and other work or access areas shall be graded to the lines and grades shown on the Drawings or as otherwise required by the Contract. The surface shall be free from sharp ridges, gullies, potholes, sinkholes, and any other surface irregularities that may interfere with surface drainage. Provide erosion protection as required by the Contract.

3.7 CONTRACTOR QUALITY CONTROL

3.7.1 Contractor Quality Control

Contractor Quality Control is that part of the contract through which the Contractor regulates, tests, and inspects his procedures, equipment, materials and personnel so that the completed product complies with the requirements of the Contract Documents. The Contractor's approved Laboratory or approved testing firm shall be prepared to perform any applicable test whether or not it is specifically called out. The referenced documents, standard practices, and test methods represent the minimum standards required in execution of quality control for this project but are not intended to be an all-inclusive list of required testing.

The Contractor shall submit a Quality Control Plan for Owner approval. The required testing in this Section shall be considered the minimum required, and the Contractor's Quality Control
Plan shall include any additional tests and/or increased frequency of testing the Contractor deems necessary to control quality and comply with the Contract.

3.7.2 Responsibility, Compilation, and Submittal of Test Results

The Contractor shall be responsible for full compliance with these specifications in the performance of tests and the preparation, submittal, and maintenance of test results listed in the Contract Specifications and the Contractor's Quality Control Plan. Each test shall be started and completed without delay, and payment for materials placed, as well as, for any subsequent construction dependent upon these materials will not be authorized until final test reports showing compliance with these specifications have been properly distributed. Copies of each test result shall be prepared with all necessary data recorded, documentation, and computations completed. Distribution of the final copies of each test result shall be made to the Engineer within 24 hours after collecting the laboratory test samples or initiating the field test except when the required test duration exceeds 24 hours. When the test duration exceeds 24 hours, distribution of the final test results shall be within 24 hours after completion of the test. All test forms shall be accurately completed. Test forms received by the Engineer that are not accurately completed will be immediately returned to the Contractor for correction or completion. Also, no quality control (QC) tests will be accepted unless the final, completed test forms are signed by the Laboratory Manager and the Contractor's QC Manager.

The horizontal and vertical locations of all QC field tests and QC samples collected for laboratory testing shall be determined to the nearest foot (1.0 ft.). The location of all field tests and laboratory test samples shall be determined with respect to the contract stationing, and the Contractor shall prepare and maintain a test location plan, which shall be submitted to the Engineer when requested.

The laboratory QC test samples/field tests shall have a sequential numbering system as approved by the Engineer. The Contractor shall maintain a Materials Test Log summarizing all field tests and laboratory testing, including failed test results, and the results of the QC tests compared to the specification requirements. For failed test results, the Materials Test Log shall include a description of the corrective actions taken and the results of tests performed after corrective action is taken. The Material Test Log shall be maintained at the Contractor's project office and made available to the Engineer upon request. In addition, a copy of the Materials Test Log and the summary of test results shall be submitted with the monthly progress report for determining the Contractor's progress payment for materials placement represented by these tests.

Inspections and test results shall be certified by Contractor's registered civil engineer. These certifications shall state that the tests and observations were performed by or under the direct supervision of Contractor's engineer and that the results are representative of the materials of conditions being certified by the tests.

The Contractor's Quality Control program is based, in part, on specific tests required for several items of work involved. The location and frequency of tests required depends on the manner in which the Contractor performs the work and the uniformity and quality of the work obtained. Additional testing may be required when the approved testing program is not considered to be adequate or applicable. Tests indicating noncompliance with the contract documents shall be reported immediately to the Engineer, and the Contractor's Quality
Control Manager shall recommend steps to be taken to alleviate areas of noncompliant conditions. The Engineer or his representative reserves the right to designate the location of sampling and type of test to be performed, at the Contractor's expense, to verify compliance. References to standard test methods and testing procedures for sampling and testing of the material are given in this Section. Periodic quality assurance tests will be made by the Engineer's representative to ensure the Contractor's compliance with contract requirements and specifications.

3.7.3 Laboratory Facilities

The Contractor shall only use an independent, established, commercial laboratory or laboratories approved by the Engineer. Laboratory facilities and personnel are to be in accordance with ASTM D 3740 and ASTM E 329 (soils). The Engineer reserves the right to make inspections of the Contractor's designated laboratory facilities, including test equipment and procedures. The Engineer may check that all equipment is in proper working order and correctly calibrated and that standard test procedures are being performed by qualified personnel. The Engineer also reserves the right to conduct additional QA testing using either its own equipment and facilities or the Contractor's. This additional QA testing shall be performed as the Engineer deems necessary.

3.7.4 Field Quality Control

The Contractor is responsible for field quality control. The Contractor shall establish and maintain field quality control for foundation preparation, embankment fill, and backfill operations to assure compliance with contract requirements. The Contractor shall maintain detailed records of field quality control for all operations, including but not limited to, the following:

A. Earthwork Equipment: Type, size, number of units, and suitability for construction of the prescribed work.


C. Fill Placement: Layout, drainage, moisture control, layer thickness, oversized material removal, root removal, spreading and compacting embankment fill and backfill.

D. Grade and Cross Section: Surveys to verify that the dimensions, slopes, lines and grades conform to those shown on the Drawings.

3.7.5 Materials Testing

The Contractor shall perform sufficient testing to ensure that the fill is being constructed as specified. The testing program specified below shall be considered the minimum acceptable frequency of testing. This does not relieve the Contractor from the responsibility of performing additional testing to ensure compliance with these Specifications.

A. Testing of Type 3 Fill
(1) Soil Classification. Soil classification tests shall be performed in accordance with ASTM D 2487. One initial classification test shall be required for each type of material to be utilized as embankment fill or backfill. As prescribed in ASTM D 2487, grain size analyses in accordance with ASTM D 422 and Atterberg limits in accordance with ASTM D 4318 shall be performed on each different soil type. The Contractor shall submit additional soil classification tests for every 1,000 cubic yards of embankment or backfill material. Additional tests will be required if noticeable changes in the material occur.

(2) Moisture-Density Relationships. The moisture-density relations for each classification of material utilized shall be determined in accordance with ASTM D 698. Prior to placing any fill material, a minimum of three (5) five-point compaction tests shall be performed on representative samples of the material to be used as fill. During fill placement a minimum of one additional moisture-density test shall be performed for every 1,000 cubic yards placed. Additional tests will be required each time a new material is encountered. The moisture-density curves will be compiled to form a family of curves which will be utilized to estimate optimum properties (maximum dry density and optimum moisture content) to be used with field density tests.

(3) Moisture Content Tests. Determination of moisture content shall be performed in accordance with ASTM D 2216 as specified below for in-place density testing. ASTM D 4643 may be used when rapid moisture content results are needed. All rapid results obtained by ASTM D 4643 shall be confirmed by a test on a duplicate sample performed in accordance with ASTM D 2216. In the event of disagreement between the results, ASTM D 2216 shall govern. One moisture content test will be performed for each 1,000 cubic yards of material placed or each lift of material whichever is more frequent.

(4) In-place Density Testing. The in-place density shall be determined in accordance with ASTM D 1556. Method ASTM D 2922 can be used by the Contractor to gage the progress of compaction, but once the required compaction level is achieved, the Contractor shall retest the material using ASTM D 1556. Perform at least one (1) in-place density test in accordance with ASTM D 1556 on each day of placement, each lift of material, or every 500 cubic yards of completed fill, whichever is more frequent. Randomly stagger the locations of the in-place density tests within the plan area of the fill. Collect a soil sample at each field density test location, adjust the moisture content uniformly throughout the sample to be dry of, but close to, the estimated optimum moisture content, and perform a one-point compaction test and a moisture content test on the soil sample. Perform the one-point compaction test in accordance with ASTM D 698. Plot the results of the one-point compaction test on the family of curves for the material type to obtain the appropriate maximum dry density for comparison with dry density obtained from the in-place density test. Fill not meeting the required specifications for in-place density shall be retested after additional compaction has been completed.

B. Testing of Type 2 and Type 4 Aggregate Materials

The aggregate shall conform to the grading and quality requirements specified for each material. Prior to placement of aggregate material, Contractor shall obtain a
representative sample of each of the aggregate materials to be furnished and shall perform a complete suite of grading and quality tests in accordance with the respective specification. Tests shall include but not be limited to the following:

(1) Type 4 material: grain size distribution, resistance (R value), sand equivalent, and durability index as specified in Section 26-1.02A of the State of California Standard Specifications, and moisture-density curves as necessary for determination of relative compaction as specified in Section 26-1.05.

(2) Type 2 filter/drain aggregate: Filter/drain aggregate shall meet the quality and grading requirements of ASTM C 33 as modified per paragraph TYPES OF FILL MATERIALS.

The Contractor shall submit additional suites of tests for every 2,000 cubic yards of each type of aggregate material. In addition, additional tests will be required if the borrow source is changed or if noticeable changes in the material occur.

C. Additional Testing

After being placed and compacted in the fill the Type 2 Filter/drain aggregate shall be sampled at 200-cubic yard intervals and tested for grain size distribution. The Engineer may request additional tests if there is reason to doubt the adequacy of the compaction, special compaction procedures are being used, materials change, the Engineer determines that the Contractor's testing is inadequate, or the Contractor is concentrating backfill and fill operations in a relatively small area.

3.7.6 Testing by the Owner

During the life of this contract, the Owner or the Engineer will perform quality assurance tests. The Contractor shall provide the Owner or the Engineer the access, equipment and materials to perform these tests.

3.7.7 Reporting

On a daily basis, furnish the inspection records and all material testing results, the quantity of fill placed, and the records of any corrective action taken, in accordance with this Section and Section 01451A Contractor Quality Control.

-- End of Section 02331 --
SECTION 02510
STORM DRAIN DISCHARGE PIPE

PART 1   GENERAL

1.1  SCOPE

This Section covers storm drain culvert and appurtenances, including the following:

   A. High density polyethylene (HDPE) culvert pipe.
   B. Controlled low strength material (CLSM) backfill.
   C. Automatic drainage gate.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to by the basic designation only.

   ASTM International (ASTM) Standards:

   ASTM D3350 Specification for Polyethylene Plastics Pipe and Fittings Materials

   D 2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications

   D4832 Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders

   American Association of State Highway and Transportation Officials (AASHTO):

   AASHTO M 294 Corrugated Polyethylene Pipe, 12- to 36-in. Diameter

   American Concrete Institute International (ACI)

   ACI 229R Controlled Low-Strength Materials

   State Of California Department Of Transportation (Caltrans)

   Caltrans Standard Specifications
1.3 SUBMITTALS

In accordance with Section 01330, SUBMITTAL PROCEDURES, the Contractor shall submit data for approval by the Engineer for the following items required by this section at least three weeks prior to the start of culvert installation work unless otherwise indicated herein.

A. Submit manufacturers’ product data for HDPE pipe and pipe connection materials.
B. Automatic drainage gate supplier and product information
C. CLSM supplier and product information

1.4 QUALITY ASSURANCE

A. All materials and equipment furnished under this Section shall: (1) be of a manufacturer who has been regularly engaged in the design and manufacture of the materials and equipment for at least 5 years and (2) be demonstrated to the satisfaction of the Engineer that the quality is equal to the materials and equipment made by those manufacturers specifically named herein, if an alternate product manufacturer is proposed.

1.5 DELIVERY AND STORAGE OF MATERIALS

A. Pipe and accessories shall be kept free from dirt, grease, and other foreign matter. Products showing evidence of poor workmanship or un-repairable damage, as determined by the Engineer, will be rejected and shall be immediately removed from the site.

PART 2 PRODUCTS

2.1 HDPE CULVERT PIPE

A. HDPE culvert pipe shall be 36-inch diameter ADS dual wall HDPE pipe N-12 ST IB or approved equal.

2.2 CLSM BACKFILL

A. Controlled Low Strength Material (CLSM) shall be as defined in ACI 229R and shall consist of lean slurry of Type II Portland cement blended with size number 8 coarse rounded aggregate conforming to the requirements specified in ASTM C33/C33M. The Contractor may elect to increase the flow-ability by using fly ash as the aggregate filler. CLSM shall have a 14-day compressive strength of 100 to 300 psi when tested in accordance with ASTM D4832. CLSM shall have a hydraulic conductivity of $1 \times 10^{-5}$ centimeters per second or less when tested in accordance with ASTM D5084 for 14-day
aged samples.

2.3 AUTOMATIC DRAINAGE GATE

A. Automatic drainage gate shall be Waterman F-10 light duty drainage gate with flat back or approved equal.

B. Automatic drainage gates shall conform to the following minimum requirements:
   a. Maximum Allowable Seating Head: 10 feet
   b. Seat Angle: 2½ degree minimum
   c. Frame: Cast iron, flatback for mounting on headwall
   d. Cover: Cast iron
   e. Hinge Arms: A36 steel galvanized
   f. Seats: Cast Iron
   g. Assembly Hardware: Stainless Steel
   h. Pivot and Link Assembly: Adjustable
   i. Coating: Non-galvanized ferrous surfaces shall be coated with Coal Tar Epoxy, 16 mil DFT minimum.

PART 3 EXECUTION

3.1 INSTALLATION OF HDPE CULVERT PIPE

A. Culvert pipe and fittings shall be installed in accordance with AASHTO M294, ASYM D2321, manufacturer's recommendations, and these specification.

B. Pipe shall be installed in a neat and workmanlike manner, properly aligned, and cut from measurements taken at the Site.

C. Install pipes to the lines and grades shown on the Drawings. Avoid the formation of dips and low points.

D. Fill materials shall be carefully placed about the drainage pipe so as not to disturb the pipe and to hold it securely in position while the overlying material is being placed.

E. Due to the pipe’s light weight and buoyancy, special care shall be exercised in laying the pipe and placing materials adjacent to the pipe to ensure that the pipe is laid and remains on grade and in alignment.

F. Method of laying the pipe shall prevent stretching of the pipe during laying operations. If split couplings are used, they shall be fitted symmetrically over the butted ends of the pipe to be jointed and secured by means of approved cord or wire ties or plastic tape located one on each side of the joint. If split or screw-type couplings are used, a minimum of two corrugations over each butted end of the pipes to be joined is required. The couplings shall have close fit with the pipe and shall maintain alignment of the pipe and prevent separation of the joints.
G. Any pipe which is broken, cracked, or otherwise unsuitable for use, as determined by the Engineer, shall be removed and replaced by the Contractor at no additional cost to the District.

H. Keep the pipe free from deposits of snow, ice, mud, sand, gravel, concrete, or other foreign matter and in good working condition until the contract is complete and accepted. Do not store pipe materials in direct sunlight.

I. Handle materials to ensure delivery to installation locations in sound undamaged condition. Do not drag pipe.

J. Use straight pipe sections and elbows not exceeding 22.5 degrees unless otherwise shown on the Drawings.

K. Do not drop fill materials directly on pipe.

L. Do not compact material directly over the pipe.

3.2 PLACEMENT OF CLSM BACKFILL

A. CLSM shall be placed directly into the excavation. The CLSM shall be placed in a uniform manner that will prevent voids in or segregation of the material. Foreign material which falls into the trench prior to and during placing of the CLSM shall be immediately removed. The CLSM shall have consistency, workability, plasticity, flow characteristics and pumpability (when required) such that the material when placed is self-compacting. Mechanical compaction or vibration may be used to consolidate around the pipe.

B. The total elapsed time between the initial addition of water to the CLSM and the completed placement shall not exceed 90 minutes.

C. The CLSM shall be placed equally on both sides of pipe or conduit to prevent lateral displacement. The CLSM shall be placed in lifts. The height of each lift shall not exceed the depth that will cause floating of the pipe or conduit. When placing the CLSM in greater lift depths, sufficient anchorage shall be provided so the pipe or conduit will not float.

3.3 INSTALLATION OF AUTOMATIC DRAINAGE GATE

A. Automatic drainage gate shall be installed per manufacturer’s recommendations.

3.4 FIELD QUALITY CONTROL

3.4.1 Controlled Low Strength Material
One set of unconfined strength and hydraulic conductivity tests of placed material. Test 14-day compressive strength in accordance with ASTM 4832. Test hydraulic conductivity in accordance with ASTM D5084 for 14-day aged samples.
SECTION 02932
SEEDING AND REVEGETATION

PART 1   GENERAL

1.1   SCOPE

Seed and revegetate the following features:

(1) Toe access corridor new fill areas (outside Type 4 surfacing areas),

(2) Berm (top and slope),

(3) All other areas disturbed by construction.

Seeding and revegetation shall be as specified herein, as shown on the Drawings, or as otherwise directed by the Engineer.

1.2   SUBMITTALS

In accordance with Section 01330, Submittal Procedures, submit data for approval by the Engineer for the following items required by this Section at least three weeks prior to the start of work outlined in this Section, unless otherwise indicated herein. Upon prior approval of the Engineer, submittals listed below may be combined.

(1) Equipment and detailed procedures that Contractor proposes to use for revegetation.

(2) Seeding Sample: A representative one-ounce sample of the seed mixture supplied for the job, labeled as to content, purity, and germination percentage.

(3) Invoices (for information only): Duplicate copies of invoices for all materials. Invoices for fertilizer shall show the grade furnished.

1.3   QUALITY ASSURANCE

All seed shall be labeled in accordance with the California Food and Agricultural Code and shall be delivered to the site in sealed individual, unmixed bags with the vendor's certificate attached. Seed shall be sampled and tested in accordance with the State Standard Specifications. Seed treated with mercury compounds shall not be used. Fertilizer shall be delivered in containers labeled in accordance with applicable state regulations and bearing the warranty of the producer for the grade furnished. Seed that has become wet, moldy, or otherwise damaged in transit or in storage, will not be acceptable.

PART 2   PRODUCTS

2.1   MATERIALS

2.1.1   Seed
The following native grass seed mix shall be applied to all areas disturbed in the execution of this contract at the following purerates.

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Seeding Rate Per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achillea millefolium</td>
<td>Yarrow</td>
<td>5 pounds</td>
</tr>
<tr>
<td>Bromus carinatus</td>
<td>California brome</td>
<td>5 pounds</td>
</tr>
<tr>
<td>Eschscholzia Californica</td>
<td>California poppy</td>
<td>5 pounds</td>
</tr>
<tr>
<td>Grindelia camporum</td>
<td>Gum plant</td>
<td>5 pounds</td>
</tr>
<tr>
<td>Hordeum brachyantherum ssp. californicum</td>
<td>California barley</td>
<td>10 pounds</td>
</tr>
<tr>
<td>Leymus triticoides</td>
<td>Creeping wildrye</td>
<td>20 pounds</td>
</tr>
<tr>
<td>Lupinus bicolor</td>
<td>Miniature lupine</td>
<td>5 pounds</td>
</tr>
<tr>
<td>Nassella cernua</td>
<td>Nodding needlegrass</td>
<td>10 pounds</td>
</tr>
<tr>
<td>Nassella pulchra</td>
<td>Purple needlegrass</td>
<td>10 pounds</td>
</tr>
<tr>
<td>Trifolium willdenovii</td>
<td>Tomcat clover</td>
<td>5 pounds</td>
</tr>
<tr>
<td>Vulpia microstachys</td>
<td>Three week fescue</td>
<td>10 pounds</td>
</tr>
</tbody>
</table>

2.1.2 Fertilizer

Fertilizer shall be liquid, of the concentrations indicated below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen (nitrate)</td>
<td>8</td>
</tr>
<tr>
<td>Phosphorus (Ammonium Polyphosphate)</td>
<td>24</td>
</tr>
<tr>
<td>Potassium (Potassium Sulfate)</td>
<td>3</td>
</tr>
<tr>
<td>Zinc (Zinc Sulfate)</td>
<td>0.25</td>
</tr>
<tr>
<td>Sulfur (Ammonium Thiosulfate)</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Fertilizer shall be delivered in containers labeled in accordance with applicable State regulations and bearing the warranty of the producer for the grade furnished.

2.1.3 Fiber Mulch

Fiber mulch shall be dyed wood cellulose fiber specially prepared for hydroseeding.

2.1.4 Straw Mulch

Straw mulch shall be derived from rice straw. The Contractor shall furnish evidence that clearance has been obtained from the County Agricultural Commissioner, as required by law, before straw obtained from outside the county in which it is to be used is delivered to the site of the work. Straw that has been used for stable bedding shall not be used. Straw shall be free of mold. Straw shall be cured and dry with no water added after baling.

2.1.5 Water

Water shall be furnished by the Contractor and shall be free of chemicals detrimental to the seed mixture.
2.1.6 Stabilizing Emulsion (Tackifier)

Stabilizing emulsion shall be in a dry powder form, may be re-emulsifiable, and shall be a processed organic derivative of Plantago insularies used as a soil binder.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 General

Prepare the areas disturbed by construction activities as specified herein or as directed by the Engineer.

3.1.2 Debris Removal

Prior to ground surface preparation operations remove and dispose of all wire, rubbish, stones, and other material that might hinder proper grading, and subsequent maintenance.

3.1.3 Surface Preparation

Surfaces that are too hard and smooth to accept the seeding, as determined by the Engineer, shall be broken up by methods approved by the Engineer until the condition of the soil is acceptable. When conditions are such, by reason of excessive moisture or other factors, that satisfactory results are not likely to be obtained, the work shall be stopped and shall be resumed only when directed.

3.2 APPLICATION OF SEED

3.2.1 Time of Seeding

Perform all seeding during the fall season, after October 1 of the year construction begins. All areas not immediately affected by continuing construction operations shall be seeded as soon as possible within the time period specified. The seeding operation shall be halted when, in the opinion of the Engineer, conditions of high winds, excessive moisture or other factors are not conducive to satisfactory results.

3.3 METHOD OF SEEDING

3.3.1 Hydroseeding

The seed and fertilizer shall be mixed with cellulose fiber and water to form slurry. Mix the slurry in tanks having continuous agitation so that a homogeneous mixture is discharged hydraulically through hoses on the area to be seeded.

a. Apply seed, fertilizer, and mulch in suspension at the following rates:
   - Seed – at rates specified in the seed mix table above
   - Fertilizer - 150 pounds per acre
   - Fiber Mulch – 2,000 pounds per acre
b. Following the application of seed mix, straw mulch shall be pneumatically applied to the area seeded, at a rate of 3,000 pounds per acre.

c. Following the application of straw mulch, a stabilizing emulsion and fiber mulch mixture shall be hydraulically applied to the area seeded, at the following rates:
   Stabilizing emulsion - 100 pounds per acre
   Mulch – 1,000 pounds per acre

3.4 ESTABLISHMENT

3.4.1 Period

The Contractor shall be responsible for the proper care of the seeded areas until May 1 of the year following the seeding, or until the desired stand of vegetation is established. The desired stand of vegetation is defined as a minimum of eighty-five percent (85%) coverage of the area seeded. The need for repair and reseeding (as described herein) within the establishment period shall be as determined by the Engineer.

3.4.2 Watering

Keep the seeded areas constantly moist during the period of the Contractor's responsibility. Apply water in a fine spray, so as not to gully the soil.

3.4.3 Protection

Protect areas susceptible to vehicular or heavy foot traffic by erecting suitable barricades immediately after seeding is completed and/or by placing warning signs of a type approved by the Engineer.

3.5 REPAIR

3.5.1 General

When any portion of the ground surface becomes gullied or otherwise damaged following seeding within the period of Contractor's responsibility, repair the affected portion to re-establish the condition and grade of the soil prior to planting and then reseed as specified for initial planting, all at no cost to Owner.

3.5.2 Reseeding

When it becomes evident that the seeding has been unsuccessful, the Engineer will require that these areas be reseeded with the same seed and quantity as specified for the initial seeding. Prepare the area for reseeding as directed by the Engineer. Complete reseeding within fifteen (15) days following notification and maintain these areas by watering, as specified above, until the successful grass is established. Reseeding due to damaged or deficient seed material or improper application shall be completed at no additional cost to the Owner.

3.6 FIELD QUALITY CONTROL

During the course of work provide daily reports of the quantities of materials applied to the areas treated. If the minimum rates of application have not been met, the Engineer will require the
distribution of additional quantities of those materials to make up the minimum applications specified.

- End of Section 02932 –
DIVISION 3 – CONCRETE
PART 1 GENERAL

1.1 SCOPE

The work in this section consists of furnishing all plant, labor, equipment, and materials and of performing all operations in connection with the concrete for minor structures and ditch lining in accordance with the Specifications and Drawings.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ACI INTERNATIONAL (ACI)

ACI 308 Standard Practice for Curing Concrete
ACI 318/318R Building Code Requirements for Structural Concrete and Commentary
ACI 347R Guide to Formwork for Concrete

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 496 Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement
ASTM A 615/A 615M Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM C 143/C 143M Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C 150 Standard Specification for Portland Cement
ASTM C 171 Standard Specification for Sheet Materials for Curing Concrete
ASTM C 172 Standard Practice for Sampling Freshly Mixed Concrete
ASTM C 231 Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 260 Standard Specification for Air-Entraining Admixtures for Concrete
<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM C 309</td>
<td>Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete</td>
</tr>
<tr>
<td>ASTM C 31/C 31M</td>
<td>Standard Practice for Making and Curing Concrete Test Specimens in the Field</td>
</tr>
<tr>
<td>ASTM C 33</td>
<td>Standard Specification for Concrete Aggregates</td>
</tr>
<tr>
<td>ASTM C 494/C 494M</td>
<td>Standard Specification for Chemical Admixtures for Concrete</td>
</tr>
<tr>
<td>ASTM C 595</td>
<td>Standard Specification for Blended Hydraulic Cements</td>
</tr>
<tr>
<td>ASTM C 618</td>
<td>Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete</td>
</tr>
<tr>
<td>ASTM C 685</td>
<td>Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing</td>
</tr>
<tr>
<td>ASTM C 920</td>
<td>Standard Specification for Elastomeric Joint Sealants</td>
</tr>
<tr>
<td>ASTM C 94/C 94M</td>
<td>Standard Specification for Ready-Mixed Concrete</td>
</tr>
<tr>
<td>ASTM D 1752</td>
<td>Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction</td>
</tr>
<tr>
<td>ASTM D 1850</td>
<td>Specification for Concrete Joint Sealer Cold-Application Type</td>
</tr>
<tr>
<td>ASTM D 75</td>
<td>Standard Practice for Sampling Aggregates</td>
</tr>
<tr>
<td>ASTM E 96</td>
<td>Standard Test Methods for Water Vapor Transmission of Materials</td>
</tr>
</tbody>
</table>

**U.S. ARMY CORPS OF ENGINEERS (USACE)**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COE CRD-C 400</td>
<td>Requirements for Water for Use in Mixing or Curing Concrete</td>
</tr>
<tr>
<td>COE CRD-C 572</td>
<td>Specifications for Polyvinylchloride Waterstop</td>
</tr>
</tbody>
</table>

**OTHER**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Federal Specification SS-S-158</td>
<td></td>
</tr>
</tbody>
</table>

1.3 SUBMITTALS
In accordance with Section 01330, Submittal Procedures, submit data for approval by the Engineer for the following items required by this Section at least three weeks prior to the start of work outlined in this Section, unless otherwise indicated herein. Upon prior approval of the Engineer, submittals listed below may be combined.

1.3.1 Product Data

Air-Entraining Admixture
Accelerating Admixture
Water-Reducing or Retarding Admixture
Curing Materials
Reinforcing Steel
Expansion Joint Filler Strips, Pre-molded
Joint Sealants - Field Molded Sealants
Waterstops

1.3.2 Manufacturer's literature as available from suppliers which demonstrates compliance with applicable specifications for the above materials.

1.3.3 Batching and Mixing Equipment: Batching and mixing equipment will be accepted on the basis of manufacturer's data demonstrating compliance with the applicable specifications.

1.3.4 Conveying and Placing Concrete: The methods and equipment for transporting, handling, depositing, and consolidating the concrete shall be submitted prior to the first concrete placement.

1.3.5 Formwork: Formwork design shall be submitted prior to the first concrete placement.

1.3.6 Test Reports for Aggregates: Aggregates will be accepted on the basis of certificates of compliance and test reports that show the material(s) meets the quality and grading requirements of the specifications under which it is furnished.

1.3.7 Concrete Mixture Proportions: Ten days prior to placement of concrete, the contractor shall submit the mixture proportions that will produce concrete of the quality required. Applicable test reports shall be submitted to verify that the concrete mixture proportions selected will produce concrete of the quality specified.

1.3.8 Certificates for Cementitious Materials: Submit certificates of compliance attesting that the concrete materials meet the requirements of the Specifications. Cementitious material will be accepted on the basis of a manufacturer's certificate of compliance, accompanied by mill test reports that the material(s) meet the requirements of the specification under which it is furnished.

1.4 DESIGN AND PERFORMANCE REQUIREMENTS

The Owner will maintain the option to sample and test aggregates and concrete to determine compliance with the Specifications. The Contractor shall provide facilities and labor as may be necessary to assist the Owner in procurement of representative test samples.
1.4.1 Strength

Acceptance test results shall be the average strength of two specimens tested at 28 days (90 days if pozzolan is used). The strength of the concrete will be considered satisfactory so long as the average of three consecutive acceptance test results equal or exceed the specified compressive strength, f’c, and no individual acceptance test result falls below f’c by more than 500 psi.

1.4.2 Construction Tolerances

A Class "C" finish shall apply to all surfaces except those specified to receive a Class "D" finish. A Class "D" finish shall apply to all surfaces which will be permanently concealed after construction. The surface requirements for the classes of finish required shall be as specified in ACI 347R.

1.4.3 Concrete Mixture Proportions

Concrete mixture proportions shall be the responsibility of the Contractor. Mixture proportions shall include the dry weights of cementitious material(s); the nominal maximum size of the coarse aggregate; the specific gravities, absorptions, and saturated surface-dry weights of fine and coarse aggregates; the quantities, types, and names of admixtures; and quantity of water per cubic yard of concrete. All materials included in the mixture proportions shall be of the same type and from the same source as will be used on the project. Specified compressive strength f’c shall be 4,000 psi at 28 days (90 days if pozzolan is used). The maximum nominal size coarse aggregate shall be 1 inch, in accordance with ACI 318/318R.

The air content shall be between 3 and 5 percent. The slump shall be between 2 and 4 inches and shall be suited to the construction means and methods employed. The maximum water cement ratio shall be 0.45.

**PART 2 PRODUCTS**

2.1 MATERIALS

2.1.1 Cementitious Materials

Cementitious materials shall conform to the appropriate specifications listed:

2.1.1.1 Portland Cement

ASTM C 150, Type II, low alkali

2.1.1.2 Pozzolan

Pozzolan shall conform to ASTM C 618, Class C or F, including requirements of Tables 1A and 2A.

2.1.2 Aggregates
Aggregates shall meet the quality and grading requirements of ASTM C 33. Coarse aggregate shall conform to the requirements of ASTM C 33 size 57.

2.1.3 Admixtures

Admixtures to be used, when required or approved, shall comply with the appropriate specification listed. Chemical admixtures that have been in storage at the project site for longer than 6 months or that have been subjected to freezing shall be retested at the expense of the Contractor and shall be rejected if test results are not satisfactory.

2.1.3.1 Air-Entraining Admixture

Air-entraining admixture shall meet the requirements of ASTM C 260.

2.1.3.2 Accelerating Admixture

Calcium chloride may not be used for this project. Other accelerators shall meet the requirements of ASTM C 494, Type C or E.

2.1.3.3 Water-Reducing or Retarding Admixture

Water-reducing or retarding admixture shall meet the requirements of ASTM C 494, Type A, B, or D. High-range water reducing admixture Type F may be used only when approved contingent upon particular placement requirements as described in the Contractor's Quality Control Plan.

2.1.4 Water

Water for mixing and curing shall be fresh, clean, potable, and free from injurious amounts of oil, acid, salt, or alkali, except that unpotable water may be used if it meets the requirements of COE CRD-C 400.

2.1.5 Reinforcing Steel

Reinforcing steel bar shall conform to the requirements of ASTM A 615, Grade 60. Reinforcing steel shall be new material, free from excessive rust or scale.

Tie wire shall be 16 gage or heavier, black annealed.

Details of reinforcement not shown shall be in accordance with ACI 318/318R, Chapters 7 and 12.

2.1.6 Expansion Joint Filler Strips, Pre-molded

Expansion joint filler strips, pre-molded shall be sponge rubber conforming to ASTM D 1752, Type I.

2.1.7 Pour-Type Joint Sealants

Joint sealant for contraction grooves shall be rubberized, cold application, ready-mixed type sealing compounds for use in joints of concrete canal lining, conforming to ASTM D
2.1.8 Joint Sealants - Field Molded Sealants

Joint sealants - field molded sealants shall conform to ASTM C 920, Type M, Grade NS, Class 25, use NT for vertical joints and Type M, Grade P, Class 25, use T for horizontal joints. Bond-breaker material shall be polyethylene tape, coated paper, metal foil, or similar type materials. The backup material shall be compressible, non-shrink, non-reactive with the sealant, and a non-absorptive material such as extruded butyl or polychloroprene foam rubber. Immediately prior to installation of field-molded sealants, the joint shall be cleaned of all debris and further cleaned using water, chemical solvents, or other means as recommended by the sealant manufacturer or directed.

2.1.9 Waterstops

Waterstops shall conform to COE CRD-C 572.

2.1.10 Formwork

The design and engineering of the formwork, as well as its construction, shall be the responsibility of the Contractor.

2.1.11 Form Coatings

Forms for exposed surfaces shall be coated with non-staining form oil which shall be applied shortly before concrete is placed.

2.1.12 Curing Materials

Curing materials shall consist of impervious Sheet Materials. Impervious sheet materials shall conform to ASTM C 171, type optional, except that polyethylene film, if used, shall be white opaque.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 General

Construction joints shall be prepared to expose coarse aggregate, and the surface shall be clean, damp, and free of laitance. Ramps and walkways, as necessary, shall be constructed to allow safe and expeditious access for concrete and workmen. Snow, ice, standing or flowing water, loose particles, debris, and foreign matter shall have been removed. Earth foundations shall be satisfactorily compacted. Spare vibrators shall be available. The entire preparation shall be accepted by the Engineer prior to placing.

3.1.2 Embedded Items

Reinforcement shall be secured in place; joints, anchors, and other embedded items shall be positioned at the required locations. Internal ties shall be arranged so that, when the forms
are removed, the metal part of the tie will be not less than 2 inches from concrete surfaces, permanently exposed to view, or exposed to water on the finished structures. Embedded items shall be free of oil and other foreign matters such as loose coatings or rust, paint, and scale. The embedding of wood in concrete will be permitted only when specifically authorized or directed. All equipment needed to place, consolidate, protect, and cure the concrete shall be at the placement site and in good operating condition.

3.1.3 Formwork Installation

Forms shall be properly aligned, adequately supported, and mortar-tight. The form surfaces shall be smooth and free from irregularities, dents, sags, or holes when used for permanently exposed faces. All exposed joints and edges shall be chamfered, unless otherwise indicated.

3.1.4 Production of Concrete

3.1.4.1 Ready-Mixed Concrete

Ready-mixed concrete shall conform to ASTM C 94 except as otherwise specified.

3.1.4.2 Concrete Made by Volumetric Batching and Continuous Mixing

Concrete made by volumetric batching and continuous mixing shall conform to ASTM C 685.

3.1.4.3 Batching and Mixing Equipment

The Contractor shall have the option of using an on-site batching and mixing facility. The facility shall provide sufficient batching and mixing equipment capacity to prevent cold joints. The method of measuring materials, batching operation, and mixer shall be submitted for review. On-site plant shall conform to the requirements of either ASTM C 94 or ASTM C 685.

3.1.5 Waterstops

Waterstops shall be installed and spliced as directed by the manufacturer.

3.2 CONVEYING AND PLACING CONCRETE

Conveying and placing concrete shall conform to the following requirements.

3.2.1 General

Concrete placement shall not be permitted when weather conditions prevent proper placement and consolidation, unless approved by the Engineer. When concrete is mixed and/or transported by a truck mixer, the concrete shall be delivered to the site of the work and discharged within 1-1/2 hours when the ambient air temperature is less than 85 degrees F or within 45 minutes when the ambient air temperature is 85 degrees F or greater, unless an approved retarding admixture is used. Concrete shall be conveyed from the mixer to the forms, as rapidly as practicable, by methods which prevent segregation or loss of ingredients. Concrete shall be in place and consolidated within 15 minutes after discharge from the mixer. Concrete shall be deposited as close as possible to its final position in the forms and be so regulated that it may be effectively consolidated in horizontal layers 18 inches or less in thickness with a minimum of lateral movement. The placement shall be carried on at such a
rate that the formation of cold joints will be prevented.

3.2.2 Consolidation

Each layer of concrete shall be consolidated by rodding, spading, or internal vibrating equipment. External vibrating equipment may be used when authorized by the Engineer. Internal vibration shall be systematically accomplished by inserting the vibrator through the fresh concrete and into the layer below at a uniform spacing over the entire area of placement. The distance between insertions shall be approximately 1.5 times the radius of action of the vibrator to overlay the adjacent, just-vibrated area by a few inches. The vibrator shall penetrate rapidly to the bottom of the layer and at least 6 inches into the layer below, if such a layer exists. It shall be held stationary until the concrete is consolidated and then withdrawn slowly at the rate of about 3 inches per second.

3.2.3 Cold-Weather Requirements

No concrete placement shall be made when the ambient temperature is below 35 degrees F or the ambient temperature is below 40 degrees F and falling. Suitable covering, or other means approved by the Engineer, shall be provided to maintain the concrete at a temperature of at least 50 degrees F for a period not less than 72 hours after placement and at a temperature above freezing for the remainder of the curing period. Salt, chemicals, or other foreign materials shall not be mixed with the concrete to prevent freezing. Any concrete damaged by freezing shall be removed and replaced at the expense of the Contractor.

3.2.4 Hot-Weather Requirements

When the rate of evaporation of surface moisture, as determined by use of Figure 1 of ACI 308, is expected to exceed 0.2 pound per square foot per hour, provisions for windbreaks, shading, fog spraying, or covering with a light-colored material shall be made in advance of placement, and such protective measures shall be taken as quickly as finishing operations will allow.

3.3 FORM REMOVAL

Forms shall not be removed within 24 hours after concrete placement unless specifically authorized by the Engineer. Supporting forms and shoring shall not be removed until the concrete has cured for at least 5 days. If necessary to protect the work, forms will be required to remain in place for longer periods.

3.4 FINISHING

3.4.1 General

No finishing or repair will be done when either the concrete temperature or the ambient temperature is below 50 degrees F.

3.4.2 Finishing Formed Surfaces

All fins and loose materials shall be removed, and surface defects, including tie holes, shall be filled. All honeycomb areas and other defects shall be repaired. All unsound concrete
shall be removed from areas to be repaired. For surfaces not to receive additional concrete, surface defects greater than 1/2 inch in diameter and holes left by removal of tie rods shall be repaired. The holes shall be reamed or chipped to an appropriate width and depth, cleaned, and prepared with and approved brush-coated epoxy resin or latex bonding compound or with a neat cement grout after dampening the concrete. After preparing the hole, the hole shall be filled with dry-pack mortar or concrete. For repairs to surfaces permanently exposed to view, the cement used in mortar or concrete shall be a blend of Portland cement and white cement so that the final color, when cured, will be the same as adjacent concrete.

3.4.3 Finishing Unformed Surfaces

All unformed surfaces that are not to be covered by additional concrete or backfill shall be float finished to elevations shown, unless otherwise specified. Surfaces to receive additional concrete or backfill shall be brought to the elevations shown and left as a true and regular surface. Exterior surfaces shall be sloped for drainage unless otherwise shown. Joints shall be carefully made with a jointing tool. Unformed surfaces shall be finished to a tolerance of 3/8 inch for a float finish and 5/16 inch for a trowel finish on surfaces shown on the plans to be level or having a constant slope. Variation from level or constant slope shall be determined by placing a 10 foot straightedge on the surface. Finishing shall not be performed while there is excess moisture or bleeding water on the surface. No water or cement shall be added to the surface during finishing.

3.4.3.1 Float Finish

Surfaces to be float finished shall be screeded and darbied or bullfloated to eliminate the ridges and to fill in the voids left by the screed. In addition, the darby or bullfloat shall fill all surface voids and only slightly embed the coarse aggregate below the surface of the fresh concrete. When the water sheen disappears and the concrete will support a person’s weight without deep imprint, floating should be completed. Floating should embed large aggregates just beneath the surface and remove slight imperfections, humps, and voids to produce a plane surface, to compact the concrete, and to consolidate mortar at the surface.

3.4.4 Expansion, Construction, and Contraction Joints, and Contraction Grooves for Ditch Lining Concrete

3.4.4.1 Expansion Joints

Expansion joints are not ordinarily required in ditch lining concrete, except where fixed structures intercept the ditch. Provide one-inch-thick transverse expansion joints where new work abuts existing concrete. A one-inch-thick flexible filler strip shall be installed in the joint. The filler strip shall be set ¾ inch below the finished surface level of the concrete to accommodate the sealant and the bond breaker between the sealant and the filler.

3.4.4.2 Construction Joints

Construction joints shall be placed when concrete placement operations are discontinued and are resumed after a considerable time interval. Reinforcement shall be continuous at the construction joints and the joint shall be prepared properly to bond to the previously placed concrete with the new concrete. Construction joints for ditch lining concrete shall be constructed at a right angle to the centerline of the ditch and shall extend for the full width of the ditch.
3.4.4.3 Contraction Joints

Contraction joints shall be placed at maximum 100-foot-intervals, or as shown on the Drawings, as a break in the concrete and the reinforcement to allow the natural shrinkage of concrete to take place without generating crack-induced tensile forces. The joint shall be formed by embedding a 1-inch by 1-inch timber or plastic joint former into the still wet concrete, removing the joint former once sufficient hardening has taken place, and filling the void by the specified sealant.

3.4.4.4 Contraction Grooves

Contraction grooves shall be constructed at 6 to 8-foot spacing, or as designated on the Drawings, and formed as weakened plane type joints or grooves to a depth of one-third of the lining thickness. The groove shall be 3/8 to 1/2-inches wide and rounded at the top to a radius of 3/8-inches. Grooves may be pre-formed using a timber strip and/or a grooving trowel or may be saw-cut after partial curing of the concrete. Contraction grooves shall be sealed with the specified sealant.

3.5 CURING AND PROTECTION

Beginning immediately after placement and continuing for at least 7 days, all concrete shall be cured and protected from premature drying, extremes in temperature, rapid temperature change, freezing, mechanical damage, and exposure to rain or flowing water. All materials and equipment needed for adequate curing and protection shall be available and at the site of the placement prior to the start of concrete placement. Preservation of moisture for concrete surfaces not in contact with forms shall be accomplished by one of the following methods:

a. Continuous sprinkling or ponding.
b. Application of absorptive mats or fabrics kept continuously wet.
c. Application of sand kept continuously wet.
d. Application of impervious sheet material conforming to ASTM C 171.
e. Application of membrane-forming curing compound conforming to ASTM C 309, Type 1-D on surfaces permanently exposed to view and Type 2 on other surfaces, in accordance with manufacturer’s instructions.

The preservation of moisture for concrete surfaces placed against wooden forms shall be accomplished by keeping the forms continuously wet for 7 days. If forms are removed prior to end of the required curing period, other curing methods shall be used for the balance of the curing period. During the period of protection removal, the temperature of the air in contact with the concrete shall not be allowed to drop more than 25 degrees F within a 24 hour period.

3.6 TESTS AND INSPECTIONS

3.6.1 General

The individuals who sample and test concrete as required in this specification shall have
demonstrated knowledge and ability to perform the necessary test procedures equivalent to the ACI minimum guidelines for certification of Concrete Field Testing Technicians, Grade I.

3.6.2 Inspection Details and Frequency of Testing

Contractor shall sample and test aggregate and concrete. Samples of aggregates shall be obtained at the point of batching in accordance with ASTM D 75. Concrete shall be sampled in accordance with ASTM C 172. Slump and air content shall be determined in accordance with ASTM C 143 and ASTM C 231, respectively, when cylinders are molded.

3.6.2.1 Preparations for Placing

Foundation and construction joints, forms, and embedded items shall be inspected by the Contractor in sufficient time prior to each concrete placement to certify that they are ready to receive concrete.

3.6.2.2 Air Content

Air content shall be checked at least twice during each shift that concrete is placed. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 231.

3.6.2.3 Slump

Slump shall be checked twice during each shift that concrete is produced. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 143.

3.6.2.4 Strength

Compression test specimens shall be made, cured, and transported in accordance with ASTM C 31. Compression test specimens shall be tested in accordance with ASTM C 39. Samples for strength tests shall be taken not less than once each shift in which concrete is produced from each class of concrete during that shift. A minimum of three specimens shall be made from each sample; two shall be tested at 28 days (90 days if pozzolan is used) for acceptance, and one shall be tested at 7 days for information.

3.6.2.5 Consolidation and Protection

The Contractor shall ensure that the concrete is properly consolidated, finished, protected, and cured.

3.6.3 Action Required

3.6.3.1 Placing

The placing foreman shall not permit placing to begin until he has verified that an adequate number of acceptable vibrators, which are in working order, and competent operators are available. Placing shall not be continued if any lift is inadequately consolidated.

3.6.3.2 Air Content
Whenever a test result is outside the specification limits, the concrete shall not be delivered to the forms and an adjustment shall be made to the dosage of the air-entrainment admixture.

3.6.3.3 Slump

Whenever a test result is outside the specification limits, the concrete shall not be delivered to the forms and an adjustment shall be made in the batch weights of water and fine aggregate. The adjustments are to be made so that the water-cement ratio does not exceed that specified in the submitted concrete mixture proportion.

3.6.4 Reports

The results of all tests and inspections conducted at the project site shall be reported informally at the end of each shift and in writing as specified in Section 01451A CONTRACTOR QUALITY CONTROL.

-- End of Section 03307A -
DIVISION 5 – METALS
SECTION 05500A
MISCELLANEOUS METALS

PART 1   GENERAL

1.1   SCOPE

The work covered by this section consists of furnishing all equipment, labor, materials, and incidentals, and performing all operations necessary for the furnishing and installation of miscellaneous iron and steel work, including but not limited to constructing metal trash racks, metal pipe roadway gates, and metal pipe vehicle barriers as shown on the plans or as directed by the Engineer, and as specified in this Section.

1.2   REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A 123/A 123M  Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 153/A 153 M  Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 240/A 240M  Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels for General Applications
ASTM A 27/A 27M  Steel Castings, Carbon, for General Application
ASTM A 307  Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength
ASTM A 325  Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A 36/A 36M  Carbon Structural Steel
ASTM A 48  Standard Specification for Gray Iron Castings
ASTM A 449  Standard Specification for Quenched and Tempered Steel Bolts and Studs
ASTM A 53/A 53M  Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A 500 Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A 501 Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
ASTM A 525M General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
ASTM A 536 Standard Specification for Ductile Iron Castings
ASTM A 563 Carbon and Alloy Steel Nuts
ASTM A 576 Specification For Steel Bars, Carbon, Hot-Wrought, Special Quality
ASTM F 436 Hardened Steel Washers
ASTM F 593 Standard Specification for Stainless Steel Bolts, Hex Cap Screws and Studs
ASTM F 844 Standard Specifications for Washers, Steel, Plain (Flat), Unhardened for General Use
ASTM D 412 Vulcanized Rubber and Thermoplastic Elastomers
ASTM B 22 Specifications for Bronze Castings for Bridges and Turn-tables

American Welding Society (AWS)
D 1.1 Structural Welding Code –Steel

AASHTO Standards
AASHTO M 180 Corrugated Sheet Steel Beams for Highway Guardrail
AASHTO M 314 Standard Specification for Steel Anchor Bolts

ANSI Standards
State Of California Department Of Transportation (Caltrans)

Caltrans Standard Specifications

Caltrans Standard Plans

1.3 SUBMITTALS

1.3.1 General

In accordance with Section 01330, SUBMITTAL PROCEDURES, submit data for approval by the Engineer for the items required by this Section at least three weeks prior to the start of work outlined in this Section, unless otherwise indicated herein.

1.3.2 Shop Drawings

Detail drawings indicating material thickness, type, grade and class; dimensions; protective coatings; and construction details. Drawings shall include catalog cuts, fabrication details, erection details, manufacturer's descriptive data and installation instructions, and templates.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

A. At the option of the Contractor, grates shall be fabricated from either structural steel conforming to the requirements in ASTM Designations:  A 36/A 36M or A 576 Grades 1021, 1022, 1026, 1029 or 1030, ductile iron castings, or carbon steel castings.

B. Welding shall conform to the requirements in AWS D1.1.

C. Fabrication shall be performed in a workmanlike manner in conformance with the practice in modern commercial shops. Burrs, rough and sharp edges, and other flaws shall be removed. Warped pieces shall be straightened after all fabrication and galvanizing.

D. Manhole frames and covers shall be fabricated from gray cast iron.

E. Items specified to be galvanized, when practicable and not indicated otherwise, shall be hot-dip galvanized after fabrication. All other items not embedded in concrete shall be painted in conformance with the provisions in paragraph, "Painting." Galvanizing shall be done in conformance with the provisions in paragraph, "Galvanizing."
F. Exposed fastenings shall be compatible materials, shall generally match in color and finish, and shall harmonize with the material to which fastenings are applied. Materials and parts necessary to complete each item, even though such work is not definitely shown or specified shall be included. Poor matching of holes for fasteners shall be cause for rejection. Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall provide strength and stiffness. Joints exposed to the weather shall be formed to exclude water.

2.2 MATERIALS

Unless otherwise specified, materials shall conform to the following specifications:
<table>
<thead>
<tr>
<th>Material</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel bars, plates and shapes</td>
<td>ASTM Designation A 36/A 36M or A 575, A 576 (AISI or M Grades 1016 through 1030 except Grade 1017)</td>
</tr>
<tr>
<td>Steel fastener components for general applications:</td>
<td></td>
</tr>
<tr>
<td>Bolts and studs</td>
<td>ASTM Designation A 307</td>
</tr>
<tr>
<td>Headed anchor bolts</td>
<td>ASTM Designation A 307, Grade B, including S1 supplementary requirements</td>
</tr>
<tr>
<td>Non-headed anchor bolts</td>
<td>ASTM Designation A 307, Grade C, including S1 supplementary requirements and S1.6 of</td>
</tr>
<tr>
<td></td>
<td>AASHTO Designation M 314 supplementary requirements</td>
</tr>
<tr>
<td></td>
<td>or AASHTO Designation M 314, Grade 36 or 55, including S1 supplementary requirements</td>
</tr>
<tr>
<td>High-strength bolts and studs, threaded rods, and non-headed anchor bolts</td>
<td></td>
</tr>
<tr>
<td>Nuts</td>
<td>ASTM Designation A 325 or A 449, Type 1</td>
</tr>
<tr>
<td></td>
<td>ASTM Designation A 563, including Appendix X1</td>
</tr>
<tr>
<td></td>
<td>ASTM Designation F 844</td>
</tr>
<tr>
<td>Washers</td>
<td></td>
</tr>
<tr>
<td>Stainless steel fasteners (Alloys 304 &amp; 316) for general applications:</td>
<td></td>
</tr>
<tr>
<td>Bolts, screws, nuts, studs, threaded rods, and non-headed anchor bolts</td>
<td>ASTM Designation F 593 or F 738M</td>
</tr>
<tr>
<td>Washers</td>
<td>ASTM Designation A 240 and ANSI B 18.22M</td>
</tr>
<tr>
<td>Carbon-steel castings</td>
<td>ASTM Designation A 27/A 27M, Grade 65-35 [450-240], Class 1</td>
</tr>
<tr>
<td>Malleable iron castings</td>
<td>ASTM Designation A 47, Grade 32510 or A 47M, Grade 22010</td>
</tr>
<tr>
<td>Gray iron castings</td>
<td>ASTM Designation A 48, Class 30B</td>
</tr>
<tr>
<td>Ductile iron castings</td>
<td>ASTM Designation A 536, Grade 65-45-12</td>
</tr>
<tr>
<td>Steel pipe</td>
<td>Commercial quality welded</td>
</tr>
<tr>
<td>Other parts for general applications</td>
<td>Commercial quality</td>
</tr>
</tbody>
</table>

### 2.3 STEEL PIPE HANDRAILS

A. Handrails shall be designed per OSHA Standard Specifications #3209 Standard Guardrails.

B. Handrail elements shall be either structural tubing as specified herein for tubular steel posts or commercial quality standard steel pipe. Tubular steel posts shall be round, seamless or welded structural tubing conforming to the requirements in ASTM A 53 Grade B or A 501 and shall have a wall thickness not less than that of standard steel pipe of the same nominal size.
C. Brackets, bolts, threaded studs, nuts, washers and other fittings shall be commercial quality structural steel, except that standard steel pipe fittings may be used where shown on the plans.

D. The railing shall be carefully erected true to line and grade. Posts shall be vertical within a tolerance not to exceed 0.02-foot in 10 feet. Posts shall be set in sockets or on mortar pads as shown on the plans.

E. Steel railings shall be of the size shown on the Drawings. Railings shall be hot-dip galvanized and shop painted. Pipe collars shall be hot-dip galvanized steel.

F. Materials for tubular rails, posts, rods, bolts and nuts shall conform to the following requirements:

<table>
<thead>
<tr>
<th>Material</th>
<th>ASTM Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubular steel rails, and tubular handrailings</td>
<td>A 500, Grade B</td>
</tr>
<tr>
<td>Steel posts, rolled bars and plate washers</td>
<td>A 36/A 36M</td>
</tr>
<tr>
<td>Steel sleeves for tubular rails</td>
<td>A 36/A 36M</td>
</tr>
<tr>
<td>High strength bolts</td>
<td>A325 or A 325M or A 449</td>
</tr>
<tr>
<td>High strength threaded rods</td>
<td>A 449</td>
</tr>
<tr>
<td>Nuts and washers for high strength bolts and rods</td>
<td>A 325 or A 325M</td>
</tr>
</tbody>
</table>

G. Metal railing shall conform closely to the horizontal and vertical lines shown on the plans or ordered by the Engineer. The railing shall present a smooth, uniform appearance in its final position.

H. Shims shall be installed at posts and railings, where necessary, to provide uniform bearing and conformance with the horizontal lines and vertical grade lines. Shims at steel posts shall be commercial quality galvanized sheet steel.

I. The difference between out-to-out rail sleeve dimensions and the clear inside dimensions of the tubular steel rails shall not exceed 5 mm {3/16 inch} after galvanizing.

J. Materials shall be carefully handled so that no parts will be bent, broken, abraded or otherwise damaged. Fabrication, handling or installation methods which will injure or distort the members or damage the galvanizing shall not be used.

K. Bearing surfaces and surfaces to be in permanent contact shall be cleaned before the railing parts are assembled. The bases of posts shall be true and flat to provide uniform bearing on the concrete portions of the railing.
2.4 GUARDRAILS

A. The rail elements, backup plates, terminal, end and return sections, bolts, nuts and other fittings shall conform to the requirements in AASHTO Designation M 180, except as modified in this Section 2.4. The rail elements, backup plates, terminal, end and return sections shall conform to Class A, Type 1 W-Beam guard railing as shown in AASHTO Designation M 180. The edges and center of the rail element shall contact each post block. Rail element joints shall be lapped not less than 12-1/2 inches and bolted. The rail metal, in addition to conforming to the requirements in AASHTO Designation M 180, shall withstand a cold bend, without cracking, of 180 degrees around a mandrel of a diameter equal to 2.5 times the thickness of the plate.

B. Two certified copies of mill test reports of each heat from which the rail element is formed shall be furnished to the Engineer.

C. Bolts shall have shoulders of such shape that will prevent the bolts from turning. Holes in rail elements shall be of similar shape as the bolt shoulder.

D. Rail elements shall be spliced at intervals not to exceed 12.5 feet and the splices shall be made at posts, unless otherwise shown on the plans.

E. The rail elements at joints shall have full bearing. When the radius of curvature is 150 feet or less, the rail elements shall be shaped in the shop. The radius of curvature shall be stenciled on the back of each section of rail elements in numerals 2-1/2 inches in height.

F. Metal beam guard railing shall be constructed using wood posts with wood blocks for line posts.

G. Wood posts and blocks shall be timbers No. 1 (structural) grade Douglas fir. Wood posts and blocks shall be rough or S4S, at the option of the Contractor. Only one type of post and block shall be used for any one continuous length of guard railing. The size tolerance of rough sawn blocks in the direction of the bolt holes shall be not more than ±1/4 inch.

H. Wood posts and blocks shall be pressure treated after fabrication with creosote, creosote-coal tar solution, creosote-petroleum solution (50-50), pentachlorophenol in hydrocarbon solvent, copper naphthenate, ammoniacal copper arsenate, or ammoniacal copper zinc arsenate, except that when other than one of the creosote processes is used, blocks shall have a minimum retention of 0.40-pound per cubic foot and need not be incised.

I. If copper naphthenate, ammoniacal copper arsenate, chromated copper arsenate or ammoniacal copper zinc arsenate is used to treat the wood posts and blocks, the bolt holes shall be treated as follows: Before the bolts are inserted, bolt holes shall be filled with a grease, recommended by the manufacturer for corrosion protection, which will not melt or run at a temperature of 150°F.
J. Breakaway wood guard rail terminal posts may be field bored to provide the 2-3/8-inch diameter hole as shown on the plans.

K. Where field cutting or boring is performed after treatment, all cuts and holes shall be thoroughly swabbed, sprayed or brushed with 2 applications of the same type of preservative as initially used, or treated with copper naphthenate as specified in AWPA Standard M4. Application of preservative in the field shall conform to the provisions in the last paragraph in Section 58-1.04, "Wood Preservative for Manual Treatment."

L. Wood posts shall be driven, with or without pilot holes, or shall be placed in drilled holes, at the option of the Contractor. Any space around wood posts shall be backfilled with selected earth, free of rock, placed in layers approximately 4 inches thick and each layer shall be moistened and thoroughly compacted.

M. Posts shall be placed at equal intervals, as shown on the plans, except that the end posts may be spaced closer to adjacent posts if directed by the Engineer.

N. The bolted connection of the rail element to the post shall withstand a 5,000-pound pull at right angles to the line of the railing.

O. All metal work shall be fabricated in the shop, and no punching, cutting or welding will be permitted in the field. Rail elements shall be lapped so that the exposed ends will not face approaching traffic.

P. Terminal sections shall be installed in conformance with the manufacturer's recommendations.

Q. Components built up from structural steel plates welded together may be substituted for the rolled steel components shown on the plans provided that the depth, width and average thicknesses are at least equal to those of the rolled section; and further provided that, for the welded section, the steel plates conform to the requirements in ASTM Designation A 36/A 36M, and the flanges are welded to the web with continuous fillet welds on each side of the web.

R. Railing parts furnished under these specifications shall be interchangeable with similar parts regardless of source.

2.5 PIPE FENCE VEHICLE BARRIERS

A. Pipe fence vehicle barriers shall be fabricated as shown on the Drawings using welded extra strong steel pipe.

B. Pipe fence vehicle barriers shall be galvanized in accordance with the requirements of this Section.
2.9 METAL FLOOD GATE

A. Furnish a metal flood gate designed in accordance with U.S. Army Corps of Engineers Engineer Manual EM 1110-2-2705 that will provide closure across the Union Pacific Railroad (formerly Western Pacific) track. The metal gate shall have two-leafs on pivots providing closure for a 21-ft wide opening and shall have the height shown on the Drawings. The metal gate leafs will be hot-dip galvanized after fabrication.

B. The gate leafs will span between reinforced concrete end walls containing the levee embankment at each side. The end walls will have embedded metals to mount gate hinges and also for dogging the gate leafs at open position.

C. The reinforced concrete end walls will be provided with safety railings designed as per Paragraph 2.3 “Steel Pipe Handrails” above.

D. The metal gate leafs will be equipped with rubber J-seals at each side to stop water flow between the concrete wall and the gate leaf.

E. The gate leafs when closed will rest on miter contact blocks mounted with rubber pads to maintain the watertight closure.

F. The lower ends of the metal gates will have 2-inches clearance above the top level of the rails and the concrete pavement at each side of the rail track.

2.10 DISSIMILAR METALS

Where dissimilar metals are in contact, or where aluminum is in contact with concrete, mortar, masonry, wet or pressure-treated wood, or absorptive materials subject to wetting, the surfaces shall be protected with a coat of bituminous paint or asphalt varnish unless otherwise specified.

2.11 WORKMANSHIP

Miscellaneous metalwork shall be well formed to shape and size, with sharp lines and angles and true curves. Drilling and punching shall produce clean true lines and surfaces. Welding shall be continuous along the entire area of contact except where tack welding is permitted. Exposed connections of work in place shall not be tack welded. Exposed welds shall be ground smooth. Exposed surfaces of work in place shall have a smooth finish, and unless otherwise approved, exposed riveting shall be flush. Where tight fits are required, joints shall be milled.
Corner joints shall be coped or mitered, well formed, and in true alignment. Work shall be accurately set to established lines and elevations and securely fastened in place. Installation shall be in accordance with manufacturer's installation instructions and approved drawings, cuts, and details.

2.12 ANCHORAGE

Anchorage shall be provided where necessary for fastening miscellaneous metal items securely in place. Anchorage not otherwise specified or indicated shall include slotted inserts made to engage with the anchors, expansion shields, and power-driven fasteners when approved for concrete; toggle bolts and through bolts for masonry; machine and carriage bolts for steel; and lag bolts and screws for wood.

2.13 ALUMINUM FINISHES

Unless otherwise specified, aluminum items shall have anodized finish. The thickness of the coating shall be not less than that specified for protective and decorative type finishes for items used in interior locations or architectural Class I type finish for items used in exterior locations in AA DAF-45. Items to be anodized shall receive a polished satin finish. Aluminum surfaces to be in contact with plaster or concrete during construction shall be protected with a field coat conforming to CID A-A-344.

2.14 PAINTING

Surfaces of ferrous metal (including all components such as posts, gates, and all attachments) except galvanized surfaces shall be cleaned, prepared, primed, and painted. The finish coat of paint shall be white. Cleaning and preparation shall conform to Society for Protective Coatings (SSPC) Specifications and the manufacturer's recommendations. Gate components shall be shop-primed to the maximum practical extent. Primer and finish coat shall be epoxy enamel consisting of the following paints or as otherwise approved by the Engineer: Ameron "Amercoat 385 Epoxy", Carboline "890", or Tnemec "Series 69 Hi-Build Epoxoline II". Paint shall be applied in accordance with manufacturer's recommendations. A copy of the manufacturer's product information and application recommendations shall be submitted to the Engineer for the product used. Surfaces of items to be embedded in concrete shall not be painted.

PART 3 EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

A. All items, except for Caltrans standard fencing, shall be installed as shown on the Drawings and according to the manufacturer's recommendations. Install Caltrans Standard fencing in accordance with Section 80 of the Caltrans Standard Specifications, appropriate Caltrans Standard Plans, and the manufacturer's recommendations.

B. Installation of steel pipe handrails shall be in pipe sleeves embedded in concrete. After installation of the post, an epoxy-type grout approved by the Engineer shall be used to secure the post to the embedded sleeve.
3.2 GALVANIZING

A. Galvanizing shall be performed after fabrication and before assembling component parts.

B. Galvanizing of products fabricated from rolled, pressed and forged steel shapes, plates, bars and strip 1/8 inch thick or thicker, shall conform to the requirements in ASTM Designation A 123/A 123M, except that complete seal welding of tightly contacting surfaces of these products prior to galvanizing is required only where seal welding is shown on the plans or specified in the special provisions. Except for pre-galvanized standard pipe, galvanizing of material 1/8 inch thick or thicker shall be performed after fabrication into the largest practical sections.

C. At the option of the Contractor, material thinner than 1/8 inch shall be galvanized either before fabrication in conformance with the requirements of ASTM Designation A 525M, Coating Designation Z600, or after fabrication in conformance with the requirements of ASTM Designation A 123/A 123M, except that the weight of zinc coating shall average not less than 2 ounces per square foot of actual surface area with no individual specimen having a coating weight of less than 1.5 ounce per square foot.

D. Galvanizing of standard pipe shall conform to the requirements of ASTM Designation A 53/A 53M. Galvanizing will not be required for stainless steel, monel metal and similar corrosion resistant parts.

E. Fabrication shall include all operations such as shearing, cutting, punching, forming, drilling, milling, bending, welding and riveting.

F. Welded areas shall be thoroughly cleaned prior to galvanizing to remove slag or other material that would interfere with the adherence of the zinc. When it is necessary to straighten any sections after galvanizing, the work shall be performed without damage to the zinc coating.

G. Galvanizing of iron and steel hardware and nuts and bolts, when specified or shown on the plans, shall conform to the requirements in ASTM Designation A 153/A 153M, except whenever threaded studs, bolts, nuts, and washers are specified to conform to the requirements in ASTM Designation A 307, A 325, A 325M, A 449, A 563, A 563M, or F 436 and zinc coating is required, they shall be hot dip zinc coated or mechanically zinc coated in conformance with the requirements in the ASTM Designations. Unless otherwise specified, galvanizing shall be performed after fabrication.

H. Components of bolted assemblies shall be galvanized separately before assembly.

I. Tapping of nuts or other internally threaded parts to be used with zinc coated bolts, anchor bars or studs shall be done after galvanizing and shall conform to the requirements for thread dimensions and overtapping allowances in ASTM Designation A 563 or A 563M.
J. Galvanized surfaces that are abraded or damaged at any time after the application of the zinc coating shall be repaired by thoroughly wire brushing the damaged areas and removing loose and cracked coating, after which the cleaned areas shall be painted with 2 applications of unthinned zinc rich primer (organic vehicle type).

- End of Section 05500A -
INFORMATION FOR BIDDERS

Attachment A – Central Valley Flood Protection Board Permits

Attachment B – Caltrans Chain Link Fence Standard Plan and Specifications –

Attachment C – CMU Wall Specifications

Attachment D – Phase 1 ESA Conclusions and Recommendations

Attachment E – Storm Water Pollution Prevention Plan
Attachment A

Central Valley Flood Protection Board Permit 18690
STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18690 BD

This Permit is issued to:

Three Rivers Levee Improvement Authority
1114 Yuba Street, Suite 218
Marysville, California 95901

To install chain link fencing, K-rails, and a maintenance road on State of California property, adjacent to the Feather River East Levee and Yuba River South Levee. Works are located in RD 784 along the east levee of the Feather River, Unit 2 from LM 0.0 to 0.94 and the south levee of the Yuba River, Unit 1, LM 2.1 to 2.2 (Section 25, T15N, R3E, MDB&M, Reclamation District 784, Feather River, Yuba County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: MAR 12 2012

[Signature]
Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection Board.
SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15 days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18690 BD

THIRTEEN: All work approved by this permit shall be in accordance with the submitted drawings and specifications except as modified by special conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval from the Central Valley Flood Protection Board.

FOURTEEN: The permittee shall contact the Department of Water Resources by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

FIFTEEN: Upon completion of the project, the permittee shall submit as-builts to: Department of Water Resources, Flood Project Inspection Section, 3310 El Camino Avenue, Suite 256, Sacramento, California 95821.

SIXTEEN: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

SEVENTEEN: The permittee shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages related to the Central Valley Flood Protection Board's approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The State expressly reserves the right to supplement or take over its
defense, in its sole discretion.

EIGHTEEN: The permitted encroachment(s) shall not interfere with operation and maintenance of the flood control project. If the permitted encroachment(s) are determined by any agency responsible for operation or maintenance of the flood control project to interfere, the permittee shall be required, at permittee's cost and expense, to modify or remove the permitted encroachment(s) under direction of the Central Valley Flood Protection Board or Department of Water Resources. If the permittee does not comply, the Central Valley Flood Protection Board may modify or remove the encroachment(s) at the permittee's expense.

NINETEEN: Permittee acknowledges the presence of elderberry shrubs which could serve as Valley Elderberry Longhorn Beetle habitat in the vicinity of this project. Permittee has structured the project so as not to include any work within 100 feet of existing elderberry plants in compliance with the U.S. Fish and Wildlife Service Conservation Guidelines dated 9 July 1999 (attached to this permit as Exhibit C) until such time as the Permittee consults with U.S. Fish and Wildlife Service to establish acceptable protocols to be used in protecting possible habitat during this project. Permittee shall provide copies of the protocols to be implemented by Permittee within the 100-foot buffer zone to Board staff as part of an application to amend this permit. Until such time and associated approved permit amendment, Permittee may not disturb the area within the 100-foot buffer zone. Prior to construction, Permittee shall submit for CVFPB Executive Officer approval construction plans and related documents showing the 100-foot buffer zone (protected during and after construction, and demonstrating compliance with the other items on page 3 of the Guidelines (Ex. C).

TWENTY: No construction work of any kind shall be done during the flood season from November 1st to April 15th without prior approval of the Central Valley Flood Protection Board.

TWENTY-ONE: The proposed gate shall be installed perpendicular to the centerline of the levee.

TWENTY-TWO: The proposed fence crossing the levee crown shall have a minimum opening width of 14 feet or a suitable gate of equal width shall be installed on the levee crown.

TWENTY-THREE: The proposed fence and gate within the levee section shall be constructed in accordance with Title 23 Section 126 and submitted fence details.

TWENTY-FOUR: Any lock on the gate must be accessible to maintenance and inspection personnel and must not be casehardened.

TWENTY-FIVE: The fence parallel with the levee shall be located twenty (20) feet from the levee toe; the levee toe location shall be determined by Permittee in consultation with and with the approval of the Board Executive Officer. Thereafter, Permittee shall resubmit project plans for Board Executive Officer approval.

TWENTY-SIX: Excavations in the levee section for fence posts and footings shall be a maximum of 3-feet deep, cleaned of all loose soil, and backfilled with concrete cast against firm undisturbed earth.

TWENTY-SEVEN: Prior to placement of fill against the levee slope and within the corridor area at the toe of the levee, all surface vegetation shall be removed to a depth of 6 inches. Organic soil and roots larger than 1-1/2 inches in diameter shall be removed to a depth of 3 feet.
TWENTY-EIGHT: Permittee shall ensure that the project has adequate stormwater management so that the maintenance road is passable during wet weather, and that the project does not worsen existing drainage problems in the area. Central Valley Flood Protection Board staff has determined that such stormwater conveyance standard can be achieved through minor grading surface drainage features with slopes of less than 10 percent and/or pipes and culverts adjacent to or under the existing maintenance road. More significant grading and pipes/culverts are not authorized by this permit, and would require permittee to amend the permit and to comply with State regulations, including the California Environmental Quality Act. Final plans shall be subject to Central Valley Flood Protection Board staff review and satisfaction of this condition before project construction may begin.

TWENTY-NINE: Any excavations made in the levee section or within 10 feet of the levee toes shall be backfilled in 4- to 6-inch layers with impervious material with 20 percent or more passing the No. 200 sieve, a plasticity index of 8 or more, and a liquid limit of less than 50 and free of lumps or stones exceeding 3 inches in greatest dimension, vegetative matter, or other unsatisfactory material. Backfill material shall be compacted in 4- to 6-inch layers to a minimum of 90 percent relative compaction as measured by ASTM Method D1557-91.

THIRTY: The patrol road shall be surfaced with a minimum of 6 inches of compacted, Class 2, aggregate base (Caltrans Specification 26-1.02A).

THIRTY-ONE: The levee section shall be restored to at least the same condition that existed prior to commencement of work.

THIRTY-TWO: The maintenance corridor area and adjacent to the patrol road at the levee toe shall be cleared of trees and brush and maintained free of woody vegetation.

THIRTY-THREE: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if damaged by any cause. If the permittee does not comply, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

THIRTY-FOUR: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board and Department of Water Resources, at the permittee's or successor's cost and expense.

THIRTY-FIVE: The permittee shall comply with all conditions set forth in the letter from the Department of the Army dated January 18, 2012, which is attached to this permit as Exhibit A and is incorporated by reference.

THIRTY-SIX: The permittee shall comply with all conditions set forth by Reclamation District 784, which is attached to this permit as Exhibit B and is incorporated by reference.

THIRTY-SEVEN: Permittee may not undertake any construction work authorized by this permit until the Board resolves the associated enforcement actions (Notices of Violation 2011-243 to 2011-249 and 2011-253 to 2011-296) consistent with the work authorized by this permit. Approval of this permit is no guarantee that the Board will resolve these enforcement actions consistent with this permit.
Prior to such time, any design work Permittee may undertake is done at Permittee's risk. After Board resolution of the above-referenced enforcement actions, the Executive Officer shall determine whether such resolution is consistent with this permit; if it is not, this permit shall require amendment.
Flood Protection and Navigation Section (18690)

Mr. Jay Punia, Executive Officer
Central Valley Flood Protection Board
3310 El Camino Avenue, Room 151
Sacramento, California 95821

Dear Mr. Punia:

We have reviewed a permit application by Three Rivers Levee Improvement Authority (TRLIA) (application number 18690). This project includes installing a 6 foot high chain link fence and K-rails parallel to the landside toe of the left bank levee of the Feather and Yuba Rivers. Work also includes minor grading along the landside toe of the levee. The project is located south of Marysville, west of Highway 70 along the Feather River East Levee and Yuba River South Levee, starting at 39.1272°N 121.5878°W NAD 83 and ending at 39.1126°N 121.5836°W NAD83 Yuba County, California.

The District Engineer has no objection to approval of this application by your Board from a flood control standpoint, subject to the following conditions:

a. That the proposed work shall not be performed during the flood season of November 1 to April 15, unless otherwise approved in writing by your Board.

b. That the proposed work shall not interfere with the integrity or hydraulic capacity of the flood damage reduction project; easement access; or maintenance, inspection, and flood fighting procedures.

c. All cleared vegetation shall be properly grubbed and the levee embankment returned to existing lines and grade.

d. That the fence and K-rails shall be located outside the limits of the project right-of-way or at least 15 feet landward of the levee toe.

Based on the information provided, no Section 10 or Section 404 permit is needed.

A copy of this letter is being furnished to Mr. Don Rasmussen, Chief, Flood Project Integrity and Inspection Branch, 3310 El Camino Avenue, Suite LL30, Sacramento, CA 95821.

Sincerely,

Rick L. Poeppelman, P.E.
Chief, Engineering Division
Reclamation District No. 784 has the following conditions to be included on the Central Valley Flood Protection Board Encroachment Permit for installation of chain link fence and k-rail adjacent to the Feather River Levee Unit 2 Levee Mile 0.0 to 1.0. The conditions are as follows:

- All improvements shall meet or exceed Central Valley Flood Protection Board Title 23, Department of Water Resources, FEMA, and U.S. Army Corps of Engineers Standards and requirements current and any future modifications of the standards.

- The facilities shall be setback a minimum of twenty (20) feet from levee toe to allow construction of operation and maintenance road. The twenty (20) feet shall be from levee toe to the edge of the k-rail in accordance with the drawings. The would result in the property line being a minimum of twenty two and one-half (22½) feet from the land side toe of levee.

- All work endorsed by this permit shall be in accordance with the submitted drawings and specifications. No further work, other than approved by this permit, shall be done in the area without prior endorsement of Reclamation District No. 784.

- The encroachment permit shall include a provision that the permittee shall be required to remove or alter all or any part of the herein permitted project if removal or alteration is necessary as part of or in conjunction with any present or future flood control plan or project, or if damaged by any cause. If the permittee or successor does not comply, RD 784, USACE, and/or the CVFPB may remove or modify the herein permitted project at the permittee’s expense.

- The permitted encroachment(s) shall not interfere with operation and maintenance of the flood control project. If the permitted encroachment(s) are determined by any agency responsible for operation and maintenance of the flood control project to interfere, the permittee shall be required, at permittee’s or successor’s sole cost and expense, to modify or remove the permitted encroachment(s).

- If the project or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project, at the permittee’s or successor’s sole cost and expense.

- A set of As-Built Mylar plans and specifications shall be provided to Reclamation District No. 784 upon completion of the work.

- A copy of the final Central Valley Flood Protection Board Permit shall be provided to Reclamation District No. 784 prior to any work.

- Reclamation District No. 784 shall be notified five (5) working days prior to any construction activities.
United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

Conservation Guidelines for the
Valley Elderberry Longhorn Beetle
9 July 1999

The following guidelines have been issued by the U.S. Fish and Wildlife Service (Service) to assist Federal agencies and non-federal project applicants needing incidental take authorization through a section 7 consultation or a section 10(a)(1)(B) permit in developing measures to avoid and minimize adverse effects on the valley elderberry longhorn beetle. The Service will revise these guidelines as needed in the future. The most recently issued version of these guidelines should be used in developing all projects and habitat restoration plans. The survey and monitoring procedures described below are designed to avoid any adverse effects to the valley elderberry longhorn beetle. Thus a recovery permit is not needed to survey for the beetle or its habitat or to monitor conservation areas. If you are interested in a recovery permit for research purposes please call the Service’s Regional Office at (503) 231-2063.

Background Information

The valley elderberry longhorn beetle (Desmocerus californicus dimorphus), was listed as a threatened species on August 8, 1980 (Federal Register 45: 52803-52807). This animal is fully protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The valley elderberry longhorn beetle (beetle) is completely dependent on its host plant, elderberry (Sambucus species), which is a common component of the remaining riparian forests and adjacent upland habitats of California’s Central Valley. Use of the elderberry by the beetle, a wood borer, is rarely apparent. Frequently, the only exterior evidence of the elderberry’s use by the beetle is an exit hole created by the larva just prior to the pupal stage. The life cycle takes one or two years to complete. The animal spends most of its life in the larval stage, living within the stems of an elderberry plant. Adult emergence is from late March through June, about the same time the elderberry produces flowers. The adult stage is short-lived. Further information on the life history, ecology, behavior, and distribution of the beetle can be found in a report by Barr (1991) and the recovery plan for the beetle (USFWS 1984).
Surveys

Proposed project sites within the range of the valley elderberry longhorn beetle should be surveyed for the presence of the beetle and its elderberry host plant by a qualified biologist. The beetle’s range extends throughout California’s Central Valley and associated foothills from about the 3,000-foot elevation contour on the east and the watershed of the Central Valley on the west (Figure 1). All or portions of 31 counties are included: Alameda, Amador, Butte, Calaveras, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Madera, Mariposa, Merced, Napa, Nevada, Placer, Sacramento, San Benito, San Joaquin, San Luis Obispo, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba.

If elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level occur on or adjacent to the proposed project site, or are otherwise located where they may be directly or indirectly affected by the proposed action, minimization measures which include planting replacement habitat (conservation planting) are required (Table 1).

All elderberry shrubs with one or more stems measuring 1.0 inch or greater in diameter at ground level that occur on or adjacent to a proposed project site must be thoroughly searched for beetle exit holes (external evidence of beetle presence). In addition, all elderberry stems one inch or greater in diameter at ground level must be tallied by diameter size class (Table 1). As outlined in Table 1, the numbers of elderberry seedlings/cuttings and associated riparian native trees/shrubs to be planted as replacement habitat are determined by stem size class of affected elderberry shrubs, presence or absence of exit holes, and whether a proposed project lies in a riparian or non-riparian area.

Elderberry plants with no stems measuring 1.0 inch or greater in diameter at ground level are unlikely to be habitat for the beetle because of their small size and/or immaturity. Therefore, no minimization measures are required for removal of elderberry plants with no stems measuring 1.0 inch or greater in diameter at ground level with no exit holes. Surveys are valid for a period of two years.

Avoid and Protect Habitat Whenever Possible

Project sites that do not contain beetle habitat are preferred. If suitable habitat for the beetle occurs on the project site, or within close proximity where beetles will be affected by the project, these areas must be designated as avoidance areas and must be protected from disturbance during the construction and operation of the project. When possible, projects should be designed such that avoidance areas are connected with adjacent habitat to prevent fragmentation and isolation of beetle populations. Any beetle habitat that cannot be avoided as described below should be considered impacted and appropriate minimization measures should be proposed as described below.
Conservation Guidelines for the Valley Elderberry Longhorn Beetle

Avoidance: Establishment and Maintenance of a Buffer Zone

Complete avoidance (i.e., no adverse effects) may be assumed when a 100-foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level. Firebreaks may not be included in the buffer zone. In buffer areas construction-related disturbance should be minimized, and any damaged area should be promptly restored following construction. The Service must be consulted before any disturbances within the buffer area are considered. In addition, the Service must be provided with a map identifying the avoidance area and written details describing avoidance measures.

Protective Measures

1. Fence and flag all areas to be avoided during construction activities. In areas where encroachment on the 100-foot buffer has been approved by the Service, provide a minimum setback of at least 20 feet from the dripline of each elderberry plant.

2. Brief contractors on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements.

3. Erect signs every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction.

4. Instruct work crews about the status of the beetle and the need to protect its elderberry host plant.

Restoration and Maintenance

1. Restore any damage done to the buffer area (area within 100 feet of elderberry plants) during construction. Provide erosion control and re-vegetate with appropriate native plants.

2. Buffer areas must continue to be protected after construction from adverse effects of the project. Measures such as fencing, signs, weeding, and trash removal are usually appropriate.

3. No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant should be used in the buffer areas, or within 100 feet of any elderberry plant with one or more stems measuring 1.0 inch or greater in diameter at ground level.
Conservation Guidelines for the Valley Elderberry Longhorn Beetle

4. The applicant must provide a written description of how the buffer areas are to be restored, protected, and maintained after construction is completed.

5. Mowing of grasses/ground cover may occur from July through April to reduce fire hazard. No mowing should occur within five (5) feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (e.g., stripping away bark through careless use of mowing/trimming equipment).

Transplant Elderberry Plants That Cannot Be Avoided

Elderberry plants must be transplanted if they can not be avoided by the proposed project. All elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level must be transplanted to a conservation area (see below). At the Service's discretion, a plant that is unlikely to survive transplantation because of poor condition or location, or a plant that would be extremely difficult to move because of access problems, may be exempted from transplantation. In cases where transplantation is not possible the minimization ratios in Table 1 may be increased to offset the additional habitat loss.

Trimming of elderberry plants (e.g., pruning along roadways, bike paths, or trails) with one or more stems 1.0 inch or greater in diameter at ground level, may result in take of beetles. Therefore, trimming is subject to appropriate minimization measures as outlined in Table 1.

1. Monitor. A qualified biologist (monitor) must be on-site for the duration of the transplanting of the elderberry plants to insure that no unauthorized take of the valley elderberry longhorn beetle occurs. If unauthorized take occurs, the monitor must have the authority to stop work until corrective measures have been completed. The monitor must immediately report any unauthorized take of the beetle or its habitat to the Service and to the California Department of Fish and Game.

2. Timing. Transplant elderberry plants when the plants are dormant, approximately November through the first two weeks in February, after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the plant and increase transplantation success.

3. Transplanting Procedure.
   a. Cut the plant back 3 to 6 feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. The trunk and all stems measuring 1.0 inch or greater in diameter at ground level should be replanted. Any leaves remaining on the plant should be removed.
b. Excavate a hole of adequate size to receive the transplant.

c. Excavate the plant using a Vermeer spade, backhoe, front end loader, or other suitable equipment, taking as much of the root ball as possible, and replant immediately at the conservation area. Move the plant only by the root ball. If the plant is to be moved and transplanted off site, secure the root ball with wire and wrap it with burlap. Dampen the burlap with water, as necessary, to keep the root ball wet. Do not let the roots dry out. Care should be taken to ensure that the soil is not dislodged from around the roots of the transplant. If the site receiving the transplant does not have adequate soil moisture, pre-wet the soil a day or two before transplantation.

d. The planting area must be at least 1,800 square feet for each elderberry transplant. The root ball should be planted so that its top is level with the existing ground. Compact the soil sufficiently so that settlement does not occur. As many as five (5) additional elderberry plantings (cuttings or seedlings) and up to five (5) associated native species plantings (see below) may also be planted within the 1,800 square foot area with the transplant. The transplant and each new planting should have its own watering basin measuring at least three (3) feet in diameter. Watering basins should have a continuous berm measuring approximately eight (8) inches wide at the base and six (6) inches high.

e. Saturate the soil with water. Do not use fertilizers or other supplements or paint the tips of stems with pruning substances, as the effects of these compounds on the beetle are unknown.

f. Monitor to ascertain if additional watering is necessary. If the soil is sandy and well-drained, plants may need to be watered weekly or twice monthly. If the soil is clayey and poorly-drained, it may not be necessary to water after the initial saturation. However, most transplants require watering through the first summer. A drip watering system and timer is ideal. However, in situations where this is not possible, a water truck or other apparatus may be used.

Plant Additional Seedlings or Cuttings

Each elderberry stem measuring 1.0 inch or greater in diameter at ground level that is adversely affected (i.e., transplanted or destroyed) must be replaced, in the conservation area, with elderberry seedlings or cuttings at a ratio ranging from 1:1 to 8:1 (new plantings to affected stems). Minimization ratios are listed and explained in Table 1. Stock of either seedlings or cuttings should be obtained from local sources. Cuttings may be obtained from the plants to be transplanted if the project site is in the vicinity of the conservation area. If the Service determines that the elderberry plants on the proposed project site are unsuitable candidates for
transplanting, the Service may allow the applicant to plant seedlings or cuttings at higher than the stated ratios in Table 1 for each elderberry plant that cannot be transplanted.

Plant Associated Native Species

Studies have found that the beetle is more abundant in dense native plant communities with a mature overstory and a mixed understory. Therefore, a mix of native plants associated with the elderberry plants at the project site or similar sites will be planted at ratios ranging from 1:1 to 2:1 [native tree/plant species to each elderberry seedling or cutting (see Table 1)]. These native plantings must be monitored with the same survival criteria used for the elderberry seedlings (see below). Stock of saplings, cuttings, and seedlings should be obtained from local sources. If the parent stock is obtained from a distance greater than one mile from the conservation area, approval by the Service of the native plant donor sites must be obtained prior to initiation of the revegetation work. Planting or seeding the conservation area with native herbaceous species is encouraged. Establishing native grasses and forbs may discourage unwanted non-native species from becoming established or persisting at the conservation area. Only stock from local sources should be used.

Examples

Example 1
The project will adversely affect beetle habitat on a vacant lot on the land side of a river levee. This levee now separates beetle habitat on the vacant lot from extant Great Valley Mixed Riparian Forest (Holland 1986) adjacent to the river. However, it is clear that the beetle habitat located on the vacant lot was part of a more extensive mixed riparian forest ecosystem extending farther from the river’s edge prior to agricultural development and levee construction. Therefore, the beetle habitat on site is considered riparian. A total of two elderberry plants with at least one stem measuring 1.0 inch or greater in diameter at ground level will be affected by the proposed action. The two plants have a total of 15 stems measuring over 1.0 inch. No exit holes were found on either plant. Ten of the stems are between 1.0 and 3.0 inches in diameter and five of the stems are greater than 5.0 inches in diameter. The conservation area is suited for riparian forest habitat. Associated natives adjacent to the conservation area are box elder (Acer negundo californica), walnut (Juglans californica var. hindsii), sycamore (Platanus racemosa), cottonwood (Populus fremontii), willow (Salix gooddingii and S. laevigata), white alder (Alnus rhombifolia), ash (Fraxinus latifolia), button willow (Cephalanthus occidentalis), and wild grape (Vitis californica).
Minimization (based on ratios in Table 1):

- Transplant the two elderberry plants that will be affected to the conservation area.

- Plant 40 elderberry rooted cuttings (10 affected stems compensated at 2:1 ratio and 5 affected stems compensated at 4:1 ratio, cuttings planted:stems affected)

- Plant 40 associated native species (ratio of associated natives to elderberry plantings is 1:1 in areas with no exit holes):
  - 5 saplings each of box elder, sycamore, and cottonwood
  - 5 willow seedlings
  - 5 white alder seedlings
  - 5 saplings each of walnut and ash
  - 3 California button willow
  - 2 wild grape vines
  - Total: 40 associated native species

- Total area required is a minimum of 1,800 sq. ft. for one to five elderberry seedlings and up to 5 associated natives. Since, a total of 80 plants must be planted (40 elderberries and 40 associated natives), a total of 0.33 acre (14,400 square feet) will be required for conservation plantings. The conservation area will be seeded and planted with native grasses and forbs, and closely monitored and maintained throughout the monitoring period.

Example 2
The project will adversely affect beetle habitat in Blue Oak Woodland (Holland 1986). One elderberry plant with at least one stem measuring 1.0 inch or greater in diameter at ground level will be affected by the proposed action. The plant has a total of 10 stems measuring over 1.0 inch. Exit holes were found on the plant. Five of the stems are between 1.0 and 3.0 inches in diameter and five of the stems are between 3.0 and 5.0 inches in diameter. The conservation area is suited for elderberry savanna (non-riparian habitat). Associated natives adjacent to the conservation area are willow (Salix species), blue oak (Quercus douglasii), interior live oak (Q. wislizenii), sycamore, poison oak (Toxicodendron diversilobum), and wild grape.

Minimization (based on ratios in Table 1):

- Transplant the one elderberry plant that will be affected to the conservation area.

- Plant 30 elderberry seedlings (5 affected stems compensated at 2:1 ratio and 5 affected stems compensated at 4:1 ratio, cuttings planted:stems affected)
Conservation Guidelines for the Valley Elderberry Longhorn Beetle

• Plant 60 associated native species (ratio of associated natives to elderberry plantings is 2:1 in areas with exit holes):

  20 saplings of blue oak, 20 saplings of sycamore, and 20 saplings of willow, and seed and plant with a mixture of native grasses and forbs

• Total area required is a minimum of 1,800 sq. ft. for one to five elderberry seedlings and up to 5 associated natives. Since, a total of 90 plants must be planted (30 elderberries and 60 associated natives), a total of 0.37 acre (16,200 square feet) will be required for conservation plantings. The conservation area will be seeded and planted with native grasses and forbs, and closely monitored and maintained throughout the monitoring period.

Conservation Area—Provide Habitat for the Beetle in Perpetuity

The conservation area is distinct from the avoidance area (though the two may adjoin), and serves to receive and protect the transplanted elderberry plants and the elderberry and other native plantings. The Service may accept proposals for off-site conservation areas where appropriate.

1. Size. The conservation area must provide at least 1,800 square feet for each transplanted elderberry plant. As many as 10 conservation plantings (i.e., elderberry cuttings or seedlings and/or associated native plants) may be planted within the 1800 square foot area with each transplanted elderberry. An additional 1,800 square feet shall be provided for every additional 10 conservation plants. Each planting should have its own watering basin measuring approximately three feet in diameter. Watering basins should be constructed with a continuous berm measuring approximately eight inches wide at the base and six inches high.

The planting density specified above is primarily for riparian forest habitats or other habitats with naturally dense cover. If the conservation area is an open habitat (i.e., elderberry savanna, oak woodland) more area may be needed for the required plantings. Contact the Service for assistance if the above planting recommendations are not appropriate for the proposed conservation area.

No area to be maintained as a firebreak may be counted as conservation area. Like the avoidance area, the conservation area should connect with adjacent habitat wherever possible, to prevent isolation of beetle populations.

Depending on adjacent land use, a buffer area may also be needed between the conservation area and the adjacent lands. For example, herbicides and pesticides are
Conservation Guidelines for the Valley Elderberry Longhorn Beetle

often used on orchards or vineyards. These chemicals may drift or runoff onto the conservation area if an adequate buffer area is not provided.

2. Long-Term Protection. The conservation area must be protected in perpetuity as habitat for the valley elderberry longhorn beetle. A conservation easement or deed restrictions to protect the conservation area must be arranged. Conservation areas may be transferred to a resource agency or appropriate private organization for long-term management. The Service must be provided with a map and written details identifying the conservation area; and the applicant must receive approval from the Service that the conservation area is acceptable prior to initiating the conservation program. A true, recorded copy of the deed transfer, conservation easement, or deed restrictions protecting the conservation area in perpetuity must be provided to the Service before project implementation.

Adequate funds must be provided to ensure that the conservation area is managed in perpetuity. The applicant must dedicate an endowment fund for this purpose, and designate the party or entity that will be responsible for long-term management of the conservation area. The Service must be provided with written documentation that funding and management of the conservation area (items 3-8 above) will be provided in perpetuity.

3. Weed Control. Weeds and other plants that are not native to the conservation area must be removed at least once a year, or at the discretion of the Service and the California Department of Fish and Game. Mechanical means should be used; herbicides are prohibited unless approved by the Service.

4. Pesticide and Toxicant Control. Measures must be taken to insure that no pesticides, herbicides, fertilizers, or other chemical agents enter the conservation area. No spraying of these agents must be done within one 100 feet of the area, or if they have the potential to drift, flow, or be washed into the area in the opinion of biologists or law enforcement personnel from the Service or the California Department of Fish and Game.

5. Litter Control. No dumping of trash or other material may occur within the conservation area. Any trash or other foreign material found deposited within the conservation area must be removed within 10 working days of discovery.

6. Fencing. Permanent fencing must be placed completely around the conservation area to prevent unauthorized entry by off-road vehicles, equestrians, and other parties that might damage or destroy the habitat of the beetle, unless approved by the Service. The applicant must receive written approval from the Service that the fencing is acceptable prior to initiation of the conservation program. The fence must be maintained in perpetuity, and must be repaired/replaced within 10 working days if it is found to be damaged. Some conservation areas may be made available to the public for appropriate recreational and educational opportunities with written approval from the Service. In
Conservation Guidelines for the Valley Elderberry Longhorn Beetle

these cases appropriate fencing and signs informing the public of the beetle's threatened status and its natural history and ecology should be used and maintained in perpetuity.

7. Signs. A minimum of two prominent signs must be placed and maintained in perpetuity at the conservation area, unless otherwise approved by the Service. The signs should note that the site is habitat of the federally threatened valley elderberry longhorn beetle and, if appropriate, include information on the beetle's natural history and ecology. The signs must be approved by the Service. The signs must be repaired or replaced within 10 working days if they are found to be damaged or destroyed.

Monitoring

The population of valley elderberry longhorn beetles, the general condition of the conservation area, and the condition of the elderberry and associated native plantings in the conservation area must be monitored over a period of either ten (10) consecutive years or for seven (7) years over a 15-year period. The applicant may elect either 10 years of monitoring, with surveys and reports every year; or 15 years of monitoring, with surveys and reports on years 1, 2, 3, 5, 7, 10, and 15. The conservation plan provided by the applicant must state which monitoring schedule will be followed. No change in monitoring schedule will be accepted after the project is initiated. If conservation planting is done in stages (i.e., not all planting is implemented in the same time period), each stage of conservation planting will have a different start date for the required monitoring time.

Surveys. In any survey year, a minimum of two site visits between February 14 and June 30 of each year must be made by a qualified biologist. Surveys must include:

1. A population census of the adult beetles, including the number of beetles observed, their condition, behavior, and their precise locations. Visual counts must be used; mark-recapture or other methods involving handling or harassment must not be used.

2. A census of beetle exit holes in elderberry stems, noting their precise locations and estimated ages.

3. An evaluation of the elderberry plants and associated native plants on the site, and on the conservation area, if disjunct, including the number of plants, their size and condition.

4. An evaluation of the adequacy of the fencing, signs, and weed control efforts in the avoidance and conservation areas.
5. A general assessment of the habitat, including any real or potential threats to the beetle and its host plants, such as erosion, fire, excessive grazing, off-road vehicle use, vandalism, excessive weed growth, etc.

The materials and methods to be used in the monitoring studies must be reviewed and approved by the Service. All appropriate Federal permits must be obtained prior to initiating the field studies.

Reports. A written report, presenting and analyzing the data from the project monitoring, must be prepared by a qualified biologist in each of the years in which a monitoring survey is required. Copies of the report must be submitted by December 31 of the same year to the Service (Chief of Endangered Species, Sacramento Fish and Wildlife Office), and the Department of Fish and Game (Supervisor, Environmental Services, Department of Fish and Game, 1416 Ninth Street, Sacramento, California 95814; and Staff Zoologist, California Natural Diversity Data Base, Department of Fish and Game, 1220 S Street, Sacramento, California 95814). The report must explicitly address the status and progress of the transplanted and planted elderberry and associated native plants and trees, as well as any failings of the conservation plan and the steps taken to correct them. Any observations of beetles or fresh exit holes must be noted. Copies of original field notes, raw data, and photographs of the conservation area must be included with the report. A vicinity map of the site and maps showing where the individual adult beetles and exit holes were observed must be included. For the elderberry and associated native plants, the survival rate, condition, and size of the plants must be analyzed. Real and likely future threats must be addressed along with suggested remedies and preventative measures (e.g. limiting public access, more frequent removal of invasive non-native vegetation, etc.).

A copy of each monitoring report, along with the original field notes, photographs, correspondence, and all other pertinent material, should be deposited at the California Academy of Sciences (Librarian, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118) by December 31 of the year that monitoring is done and the report is prepared. The Service's Sacramento Fish and Wildlife Office should be provided with a copy of the receipt from the Academy library acknowledging receipt of the material, or the library catalog number assigned to it.

Access. Biologists and law enforcement personnel from the California Department of Fish and Game and the Service must be given complete access to the project site to monitor transplanting activities. Personnel from both these agencies must be given complete access to the project and the conservation area to monitor the beetle and its habitat in perpetuity.

Success Criteria

A minimum survival rate of at least 60 percent of the elderberry plants and 60 percent of the associated native plants must be maintained throughout the monitoring period. Within one year of discovery that survival has dropped below 60 percent, the applicant must replace failed plantings to bring survival above this level. The Service will make any determination as to the
Conservation Guidelines for the Valley Elderberry Longhorn Beetle

applicant's replacement responsibilities arising from circumstances beyond its control, such as plants damaged or killed as a result of severe flooding or vandalism.

Service Contact

These guidelines were prepared by the Endangered Species Division of the Service's Sacramento Fish and Wildlife Office. If you have questions regarding these guidelines or to request a copy of the most recent guidelines, telephone (916) 414-6600, or write to:

U.S. Fish and Wildlife Service
Ecological Services
2800 Cottage Way, W-2605
Sacramento, CA 95825
Conservation Guidelines for the Valley Elderberry Longhorn Beetle

Figure 1: Range of the Valley Elderberry Longhorn Beetle
Conservation Guidelines for the Valley Elderberry Longhorn Beetle

Literature Cited


USFWS. 1980. Listing the valley elderberry longhorn beetle as a threatened species with critical habitat. Federal Register 45:52803-52807.

Table 1: Minimization ratios based on location (riparian vs. non-riparian), stem diameter of affected elderberry plants at ground level, and presence or absence of exit holes.

<table>
<thead>
<tr>
<th>Location</th>
<th>Stems (maximum diameter at ground level)</th>
<th>Exit Holes on Shrub Y/N (quantify)¹</th>
<th>Elderberry Seedling Ratio²</th>
<th>Associated Native Plant Ratio³</th>
</tr>
</thead>
<tbody>
<tr>
<td>non-riparian</td>
<td>stems ≥ 1&quot; &amp; &lt; 3&quot;</td>
<td>No: 1:1</td>
<td></td>
<td>1:1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes: 2:1</td>
<td></td>
<td>2:1</td>
</tr>
<tr>
<td>non-riparian</td>
<td>stems &gt; 3&quot; &amp; &lt; 5&quot;</td>
<td>No: 2:1</td>
<td></td>
<td>1:1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes: 4:1</td>
<td></td>
<td>2:1</td>
</tr>
<tr>
<td>non-riparian</td>
<td>stems ≥ 5&quot;</td>
<td>No: 3:1</td>
<td></td>
<td>1:1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes: 6:1</td>
<td></td>
<td>2:1</td>
</tr>
<tr>
<td>riparian</td>
<td>stems ≥ 1&quot; &amp; &lt; 3&quot;</td>
<td>No: 2:1</td>
<td></td>
<td>1:1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes: 4:1</td>
<td></td>
<td>2:1</td>
</tr>
<tr>
<td>riparian</td>
<td>stems &gt; 3&quot; &amp; &lt; 5&quot;</td>
<td>No: 3:1</td>
<td></td>
<td>1:1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes: 6:1</td>
<td></td>
<td>2:1</td>
</tr>
<tr>
<td>riparian</td>
<td>stems ≥ 5&quot;</td>
<td>No: 4:1</td>
<td></td>
<td>1:1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes: 8:1</td>
<td></td>
<td>2:1</td>
</tr>
</tbody>
</table>

¹ All stems measuring one inch or greater in diameter at ground level on a single shrub are considered occupied when exit holes are present anywhere on the shrub.

² Ratios in the Elderberry Seedling Ratio column correspond to the number of cuttings or seedlings to be planted per elderberry stem (one inch or greater in diameter at ground level) affected by a project.

³ Ratios in the Associated Native Plant Ratio column correspond to the number of associated native species to be planted per elderberry (seedling or cutting) planted.
Attachment B

Caltrans Standard Plan A-85
Caltrans Standard Specification 80-4
80-3.04 PAYMENT

 Quantities of barbed wire and wire mesh fence, measured as specified in Section 80-3.03, "Measurement," will be paid for at the contract price per linear foot, or per mile, for fence (Type BW or WM, wood or metal posts), and the contract unit price per wire mesh gate, of the size or sizes required.

 Full compensation for clearing the line of the fence and disposing of the resulting material, excavating high points in the existing ground, excavating and backfilling holes, disposing of surplus excavated material, and furnishing and placing concrete footings and deadmen, and connecting new fences to structures and existing cross fences, and constructing temporary fences for the protection of stock, shall be considered as included in the contract price paid per linear foot or per mile for the fence and no additional compensation will be allowed therefor.

 The above prices and payments shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing fences, complete in place, as shown on the plans and as specified in these specifications and the special provisions, and as directed by the Engineer.

 80-4 CHAIN LINK FENCE

 80-4.01 MATERIALS

 All ferrous materials shall be protected by galvanizing or other specified coatings. Imperfectly galvanized or coated material or material with serious abrasions shall not be used.

 80-4.01A Posts and Braces

 The base metal for the manufacture of posts and braces shall be commercial quality, or better, weldable steel.

 Posts and braces shall be galvanized in conformance with the provisions in Section 75-1.05, "Galvanizing," or, if the Contractor elects, tubular posts and braces shall have protective coating conforming to the following:

 Exterior surfaces of tubular posts and braces shall have a combination coating consisting of a hot-dip galvanized primer followed by a chromate conversion coating, followed by a finish coat of clear, cross-linked organic coating. The thickness of the zinc coating shall be a minimum of 0.9 mil as determined from the average results of 2 or more specimens and not less than 0.8 mil on an individual specimen. The chromate conversion coating shall be a minimum of 15 micrograms per square inch. The total thickness of the combination coating shall be a minimum of 1.7 mils. The exterior clear coated surface of the pipe shall have a demonstrated ability to resist 1000 hours of exposure to salt fog with a maximum of 5 percent red rust when tested in conformance with the requirements in ASTM Designation: B 117. The clear finish coat shall not have any film cracking after 500 hours of exposure in an artificial weathering device in conformance with the requirements in ASTM Designation: G 152, cycles 1 or 3 Carbon Arc artificial weathering device, or G 155, cycles 1 or 2 Xenon Arc artificial weathering device. The clear finish coat shall not have any blistering or cracking after 500 hours of exposure to
100 percent relative humidity in conformance with the requirements in ASTM Designation: D 2247. Interior surfaces shall have a zinc coating or a cross-linked organic coating containing a corrosion inhibitor. The minimum coating thickness shall be 0.3 mil. The interior coated surface shall have a demonstrated ability to resist 300 hours of exposure to salt fog with a maximum of 5 percent red rust when tested in conformance with the requirements in ASTM Designation: B 117.

The protective coating system to be used shall be approved by the Engineer prior to the intended use of the posts and braces. Any change of a coating system once approved will be considered a new system and will be subject to reapproval.

The manufacturer shall supply a certification that the protective coatings comply with the above requirements. The certification shall be in conformance with the provisions in Section 6-1.07, "Certificates of Compliance."

- Line, end, latch, and corner posts shall have not less than the following Minimum Resisting Moments:

<table>
<thead>
<tr>
<th>Minimum Resisting Moments (foot-pounds)*</th>
<th>Line Posts</th>
<th>End, Latch, and Corner posts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perpendicular to Fence Line</td>
<td></td>
<td>Any Direction</td>
</tr>
<tr>
<td>Fence height 6 ft and less</td>
<td>800</td>
<td>400</td>
</tr>
<tr>
<td>Fence height over 6 ft (but not to exceed 10 ft)</td>
<td>1,400</td>
<td>700</td>
</tr>
</tbody>
</table>

* Resisting moment is defined as the product of the member's Section Modulus about the designated axis and its yield strength.

- Braces shall have a Minimum Resisting Moment of not less than 400 foot-pounds about the major axis and not less than 300 foot-pounds about the minor axis.
- End, latch and corner posts shall have a midpoint deflection about either axis not greater than 0.25-inch and posts and braces shall have a permanent set about either axis not greater than 0.01-inch when tested in conformance with the requirements in California Test 674.
- One post from each lot of 1500 posts or less and one brace from each lot of 500 braces or less shall be tested in conformance with the requirements in California Test 674. If that post or brace fails, then 2 additional posts or braces from the same lot shall be sampled and tested. The entire lot of posts or braces will be rejected if either one of the additional sampled posts or braces fails.
- The material of which posts and braces are fabricated shall have a nominal thickness, before galvanizing, of not less than 0.105-inch for posts and 0.075-inch for braces.
- If the line posts being used have a resisting moment about the weaker axis which is less than 75 percent of the required minimum resisting moment
perpendicular to the fence line, the posts shall not be used at angle points in the fence line where the deflection angle exceeds 10 degrees. If the line posts being used have a resisting moment about the weaker axis which is not less than 75 percent of the required minimum resisting moment perpendicular to the fence line, the posts may be used at angle points in the fence line up to a deflection angle of 30 degrees. Changes in line where the angle of deflection exceeds 30 degrees shall be considered as corners and corner posts shall be installed.

- Gate posts shall be fabricated from pipe conforming to the requirements shown on the plans.
- The length of posts, exclusive of fitted top fixtures or other methods of supporting the top tension wire which are integral with the post, shall not be less than the depth of the concrete footings shown on the plans plus the height of the fabric as shown on the plans or specified in the special provisions, less 4 inches.
- Posts shall have provisions to securely hold the top tension wire in position and allow for removal and replacement of a post without damaging the top tension wire. Tubular posts shall be fitted with rainproof tops.
- Post tops, extension arms, stretcher bars and other required fittings and hardware shall be steel or malleable iron or wrought iron and shall be galvanized after fabrication in conformance with the provisions for posts and braces in Section 75-1.05, "Galvanizing." All required fittings and hardware shall be fastened to the posts in the proper manner.

80-4.01B Fabric
- Chain link fabric shall conform to the requirements in AASHTO Designation: M 181 for Type I zinc coated fabric with a Class C coating. The wire used in the manufacture of the fabric shall be 11-gage for fence 84 inches or less in height and shall be 9-gage for fence over 84 inches in height.
- Chain link fence fabric shall be woven into approximately 2-inch mesh such that there shall be at least 7 meshes in a vertical dimension of 23 inches along the diagonals of the openings. Chain link fence fabric shall have knuckled finish on top and bottom edges.

80-4.01C Miscellaneous
- Between posts, chain link fabric shall be fastened to a top and bottom tension wire. The tension wire shall be at least 7-gage (0.177-inch dia.) coil spring steel of good commercial quality and shall be galvanized in conformance with the requirements in ASTM Designation: A 116, Coating Class 3.
- Tie wires and hog rings shall be at least 9-gage (0.148-inch dia.) steel and post clips shall be at least 6-gage (0.192-inch dia.) steel; all tie wires, hog rings and post clips shall be galvanized in conformance with the requirements in ASTM Designation: A 116, Coating Class 3.
- Turnbuckles and truss tighteners shall be fabricated of commercial quality steel, malleable iron or wrought iron and shall be galvanized as provided in Section 75-1.05, "Galvanizing." The truss tighteners shall have a strap thickness of not less than 1/4 inch.
Portland cement concrete for metal post footings and for deadmen shall be produced from commercial quality aggregates and cement and shall contain not less than 470 pounds of cement per cubic cubic yard.

80-4.01D Gates
- Drive gates shall be of the widths designated in the contract item. Walk gates shall be 4 feet wide.
- Gates greater than 8 feet in length shall have interior vertical members installed so that no panel exceeds 8 feet in length. Gate frames shall be constructed of not less than 1 1/2-inch pipe. Interior vertical members shall be constructed of not less than one inch pipe. Pipe shall conform to the provisions for posts and braces in Section 80-4.01A, "Posts and Braces."
- Gate frame panels shall be cross trussed with adjustable truss rods having diameters of not less than 3/8 inch. The corners of the gate frames shall be fastened together and reinforced with a malleable iron or a pressed steel fitting designed for the purpose, or by welding. Pressed steel fittings shall have a nominal thickness, before galvanizing, of not less than 0.135-inch and shall be fastened suitably to develop the strength of the connected members. Welding shall conform to the best commercial practice; welds shall be sound and shall develop the strength of the connected member. Welds shall be smooth.
- Fittings, latches, rods and other gate hardware shall be galvanized in conformance with the provisions in Section 75-1.05, "Galvanizing."
- Chain link fence fabric specified for the fence shall be attached to the gate frame by the use of stretcher bars and tie wires as specified for fence construction, and suitable tension connectors shall be spaced at approximately one foot intervals.
- The gates shall be hung by at least 2 steel or malleable iron hinges not less than 3 inches in width, so designed as to securely clamp to the gate post and permit the gate to be swung back against the fence. The bottom hinge shall have a socket to take the ball end of the gate frame.
- Gates shall be provided with a combination steel or malleable iron catch and locking attachment of approved design which will not rotate around the latch post. Stops to hold gates open and a center rest with catch shall be provided where required.

80-4.02 CONSTRUCTION
- Line posts shall be spaced at not more than 10-foot intervals, measured from center to center of posts. In general, in determining the post spacing, measurement will be made parallel to the slope of the natural ground, and posts shall be placed in a vertical position, except in unusual locations where directed by the Engineer the posts shall be set perpendicular to the ground surface.
- Posts shall be set in concrete footings conforming to the details shown on the plans and crowned at the top to shed water.
- End, latch and corner posts shall be braced to the nearest line post. At the Contractor's option bracing shall be accomplished either with diagonal braces used as compression members or with horizontal braces used as compression members and steel truss rods having minimum diameters of 3/8 inch used as tension members. Gate posts shall be braced to the nearest line post with a horizontal brace
used as a compression member and steel truss rods having minimum diameters of 3/8 inch as tension members. Each steel truss rod shall be equipped with a turnbuckle or truss tighten with tensile strength equal to the truss rod. Line posts shall be braced horizontally and trussed in both directions at intervals not to exceed 1,000 feet, except that this bracing and trussing may be omitted when the fabric is installed by stretching with equipment.

- Chain link fabric shall be fastened on the side of the posts designated by the Engineer.
- The fabric shall be stretched and securely fastened to the posts, and between posts the top and bottom edges of the fabric shall be fastened to the tension wires. Tension wires shall be stretched tight. The bottom tension wire shall be installed on a straight grade between posts by excavating the high points of ground and in no case will filling of depressions be permitted.
- The fabric shall be fastened to end, latch, corner and gate posts with stretcher bars having dimensions of not less than 1/4" x 3/4" and stretcher bar bands having dimensions of not less than 1/8" x 3/4" spaced at one foot intervals. The fabric shall be fastened to line posts with tie wires or post clips and to tension wires with tie wires or hog rings. The fasteners shall be spaced at approximately 14 inches on line posts and at approximately 18 inches on tension wires. Wire ties shall be given at least one complete turn. Hog rings shall be closed with ends overlapping. The tension wires shall be wrapped around terminal posts. The distance from the top of the fabric to the top tension wire shall be 2 inches maximum.
- In lieu of using stretcher bars and bar bands, the fabric may be fastened to the end and corner posts by threading through loops formed on the posts.
- Surplus excavated material remaining after the fence has been constructed shall be disposed of in a uniform manner along the adjacent roadway as directed by the Engineer.

80-4.03 MEASUREMENT

- Quantities of chain link fence to be paid for will be determined by the linear foot or mile from actual measurements, the measurements to be made parallel to the ground slope along the line of the completed fence, deducting the widths of openings.
- Quantities of gates will be determined from actual count. When more than one gate is placed in an opening, each single unit placed will be counted as a gate. A gate unit complete in place shall include one gate with all necessary fittings, hardware, and gate and latch posts with braces.

80-4.04 PAYMENT

- Items of work, measured as specified in Section 80-4.03, "Measurement," will be paid for at the contract price per linear foot, or per mile, for chain link fence of the type designated in the Engineer’s Estimate and the contract unit price per chain link gate, if gates are required. The size and type of gate will be designated in the contract item or special provisions.
- Full compensation for clearing the line of the fence and disposing of the resulting material, excavating high points in the existing ground between posts, excavating holes, disposing of surplus excavated material, and furnishing and
placing portland cement concrete footings, and connecting new fences to structures and existing cross fences, and constructing temporary fences for the protection of stock, shall be considered as included in the price paid for the fence and no additional compensation will be allowed therefor.

The above prices and payments shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing chain link fences and gates, complete in place, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.
Attachment C

CMU Wall Specifications – Referenced Standard Specifications for Public Works Projects
The minimum cementitious material shall be 630 lbs/yd^3 (10 Tonne/m^3). The maximum water-to-cementitious ratio shall be 0.30 lb/lb (136 g/g), unless otherwise specified in the Special Provisions. If so specified in the Special Provisions or approved by the Engineer, a hydration stabilizing admixture conforming to ASTM C494 Type B or a Type D admixture may be used. If so specified in the Special Provisions or approved by the Engineer, an air-entraining agent conforming to ASTM C260 may be used.

201-2 REINFORCEMENT FOR CONCRETE.

201-2.1 General. Reinforcement for concrete specified or approved by the Engineer shall conform to the appropriate ASTM standard. Bar, wire, and welded wire reinforcement shall conform to dimensions and details indicated on the Plans or otherwise prescribed. Before placed in any concrete work, it must be thoroughly cleaned. When steel, glass or synthetic fibers are used, the quantity and material type shall conform to details indicated on the Plans or in the Specifications, as approved by the Engineer. Approval to use any reinforcement shall not relieve the Contractor of the specified concrete requirements, including strength.

201-2.2 Steel Reinforcement.

201-2.2.1 Reinforcing Steel. Unless otherwise specified, reinforcing steel shall be either Grade 40 (300) or Grade 60 (400) billet steel conforming to ASTM A615/A615M. Steel bending processes shall conform to the requirements of Manual of Standard Practice of the Concrete Reinforcing Steel Institute. Bending or straightening shall be accomplished so that the steel will not be damaged. Kinked bars shall not be used.

201-2.2.2 Wire Reinforcement. Wire reinforcement shall in all respects fulfill requirements prescribed in ASTM A82.

201-2.2.3 Welded Wire Reinforcement. Welded wire reinforcement shall conform to ASTM A185. The gage of the wire and the dimensions of the mesh shall be as shown on the Plans or in the Specifications. The welded wire reinforcements shall be so constructed as to retain its original shape and form during necessary handling. The effective cross-sectional area of the wire shall be equal to that specified or indicated on the Plans.

201-2.3 Fiber Reinforcement. Fiber Reinforced Concrete or Air-Placed Concrete, Type B shall conform to ASTM C1116 material requirements and classifications. Concrete containing fibers shall conform to 201-1.1.4. Fiber Type (Type I, II, or III), fiber manufacturer and addition rate of fibers per cubic yard shall be included in the mix design approved by the Engineer. Type II and Type III fibers shall not be used to replace structural reinforcement, and shall be added at the batch plant.

201-2.3.1 Type I. Steel Fiber Reinforced Concrete or Air-Placed Concrete, Type B. Type I shall contain stainless steel, alloy steel, or carbon steel fibers.

201-2.3.2 Type II. Glass Fiber Reinforced Concrete or Air-Placed Concrete, Type B. Type II shall contain alkali-resistant glass fibers.

201-2.3.3 Type III. Synthetic Fiber Reinforced Concrete or Air-Placed Concrete, Type B. Type III shall contain virgin homopolymer polypropylene fibers or other synthetic fibers.

201-2.4 Samples for Testing.

201-2.4.1 General. No reinforcing steel will be accepted until it has been approved by the Engineer. Samples shall be taken from bars selected by the Engineer and cut in the Engineer’s presence. The Contractor shall furnish a certified mill test report for each heat or size of steel when required by the Engineer.

201-2.4.2 Reinforcing Steel Bars. Two sample bars, cut from different bars and 3 feet (1m) in length for sizes No. 3 (10M) through No. 5 (16M) and 5 feet (1.5m) in length for size No. 6 (19M) and larger, shall be taken from each bar size and heat number delivered to the Work site on a cumulative tonnage basis in accordance with the following schedule:
201-2.4.3 Wire Reinforcement. One sample consisting of two pieces, each 3 feet (1m) long, shall be taken from each lot of 2 tons (2 tonne) or less for each size of wire delivered to the Work site.

201-2.4.4 Wire Mesh Reinforcement. Two samples of a size suitable for testing shall be taken from each 3,000 square feet (280m²) of fabric or fraction thereof.

201-3 EXPANSION JOINT FILLER AND JOINT SEALANTS.

201-3.1 General. This section specifies joint fillers and sealants to be used for treating joints in portland cement concrete.

All joints which are to be sealed shall be formed with filler. The filler shall be placed in correct position before concrete is placed against it. Holes or joints in the filler shall be filled with mastic to prevent the passage of mortar or concrete from one side of the joint to the other.

201-3.2 Premolded Joint Filler. Premolded joint filler material shall consist of premolded strips of a durable resilient material.

Unless otherwise specified, premolded joint filler shall be one of the following:

- Preformed Expansion Joint Filler (Bituminous) ASTM D994
- Nonextruding and Resilient Filler (Bituminous) ASTM D1751
- Nonextruding and Resilient Filler (Non-bituminous) ASTM D1752

201-3.3 Polystyrene Joint Filler. Commercial quality expanded polystyrene foam blocks and planks shall be furnished by the Contractor and installed in-place as shown on the Plans. The foam shall be composed of non-interconnecting cells. Expanded polystyrene shall have a flexural strength of 35 psi (240 kPa) and a compressive yield strength of between 16 and 40 psi (110 kPa and 275 kPa) at 5 percent compression.

Surfaces of expanded polystyrene against which concrete is to be placed shall be faced with hardboard. Hardboard shall be 1/8 inch (3mm) minimum thickness conforming to Federal Specifications LLL-B-810, any type. Other facing materials may be used, provided they furnish equivalent protection. All boards shall be held in place by nails, waterproof adhesive, or other means approved by the Engineer.

201-3.4 Type “A” Sealant (Two-Part Polyurethane Sealant). The sealant shall be a polyurethane sealant furnished and placed in accordance with the Specifications for “Two-Component Machine-Mixed Polyurethane Sealant” (State Specification 8030-61J-01).
201-7.3. Non-Shrink Grout. Non-shrink grout shall be a high strength nonstaining grout approved by the Engineer and meeting the requirements of ASTM C1107. The grout shall be mixed, handled and placed in accordance with the manufacturer’s instructions.

SECTION 202 - MASONRY MATERIALS

202-1 BRICK.

202-1.1 General. Brick shall be whole, sound, hard, burned, give a clear ringing sound when struck together, and be uniform in quality. Brick shall be culled or sorted before delivery to the Work site. Mortar used in brick construction shall be Class “D” conforming to 202-3.1. Grout used in brick construction shall conform to 202-3.2. Fine grout shall be used in spaces less than 2 inches (50mm) clear in any dimension. Coarse grout shall be used in spaces 2 inches (50mm) or larger in all horizontal directions.

202-1.2 Manhole Brick. Sewer manhole brick shall conform to ASTM C62, Grade MW, modified as follows:

a) The average compressive strength of 5 bricks shall not be less than 4,000 psi (28MPa) and the compressive strength of any individual brick shall not be less than 3,500 psi (24MPa).

b) The absorption of any individual brick shall not be more than 16 percent when submerged 24 hours in cold water.

c) Dimensions shall conform to the following:

<table>
<thead>
<tr>
<th>TABLE 202-1.2 (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth inches (mm)</td>
</tr>
<tr>
<td>Standard Size</td>
</tr>
<tr>
<td>Allowed Variation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE 202-1.2 (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth inches (mm)</td>
</tr>
<tr>
<td>Standard Size</td>
</tr>
<tr>
<td>Allowed Variation</td>
</tr>
</tbody>
</table>

d) Plaster for brick sewer structures shall be Class “D” mortar conforming to 201-5.1.

202-1.3 Building Brick. Building brick shall conform to ASTM C62, Grade MW. The size and texture shall be as shown on the Plans, as specified in the Special Provisions, or as approved by the Engineer.

202-1.4 Facing Brick. Facing brick shall conform to ASTM C216, Grade MW, Type FBS. The size, color, and texture shall be as shown on the Plans, as specified in the Special Provisions, or as approved by the Engineer.

202-2 CONCRETE BLOCK.

202-2.1 General. Mortar used in concrete block construction shall be Class “D” or “E” conforming to 202-3.1. Grout used in concrete block construction shall conform to 202-3.2. Fine grout shall be used in spaces less than 4 inches (100mm) clear in any dimension. Coarse grout shall be used in spaces 4 inches (100mm) or larger in all horizontal directions.

202-2.2 Masonry Units. Masonry units shall be made with sand-gravel aggregate and conform to ASTM C90. The net size of the units shall be as indicated on the Plans. Unless otherwise specified in the Special Provisions, all units shall be of the normal weight classification [oven-dry weight of concrete 125 pounds per cubic foot (2000 kilograms per cubic meter) or more].
The release of any material by the Engineer shall not preclude subsequent rejection of the material if it is damaged in transit or later found to be defective.

303-3.9 Handling. Extreme care shall be exercised in handling, storing, moving, or erecting precast prestressed concrete members to avoid twisting, racking, or other distortion that would result in cracking or damage to the members. Every precast prestressed member shall be handled, transported, and erected in an upright position and the points of support and directions of the reactions with respect to the member shall be approximately the same during transportation and storage as when the member is in its position.

After erection, the prestressed girders shall be adequately supported and braced until after the concrete of the diaphragms or of other girder bracing members has hardened.

Precast prestressed concrete piling shall be placed in accordance with the provisions for concrete piling as specified in 305-1.

303-3.10 Measurement and Payment. Precast prestressed concrete members, except piling, will be paid for at the Contract Unit Price in the Bid for furnishing and erecting precast prestressed concrete members of the various types and lengths.

Precast prestressed concrete piling will be measured and paid for as provided in 305-1.8.

Full compensation for furnishing and placing transverse connections, anchor rods, expansion joints material, and for grouting spaces and recesses between the members shall be considered as included in the Contract Unit Price for furnishing and erecting the member and no additional compensation will be allowed therefore.

303-4 MASONRY CONSTRUCTION.

303-4.1 Concrete Block Masonry.1

1. Portions reprinted through courtesy of Concrete Masonry Association of California.

303-4.1.1 General. All materials for concrete block masonry shall conform to the requirements of 202-2.

303-4.1.2 Construction. All work shall be performed in a workmanlike manner and in full compliance with the applicable building ordinances.

All masonry walls shall be laid true, level, and plumb in accordance with the Plans.

Masonry units shall be cured, dry, and surfaces shall be clean when laid in the walls.

During construction, all partially laid walls as well as units in storage shall be protected from moisture. All concrete block units and any partially laid walls which become wet during the construction shall be permitted to dry for at least 1 week or longer, if required by weather conditions, before recommencing work.

Proper masonry units shall be used to provide for all windows, doors, bond beams, lintels, pilasters, etc., with a minimum of unit cutting. Where masonry unit cutting is necessary, all cuts shall be neat and regular and edges exposed in the finished work shall be cut with a power-driven abrasive saw.

Where no bond pattern is shown, the wall shall be laid up in straight uniform courses with regular running bond and alternate header joints in vertical alignment.

Intersecting masonry walls and partitions shall be bonded by the use of 1/4 inch (6mm) minimum-diameter steel ties at 24 inches (600mm) on centers (maximum).

Where stack bond is indicated on the Plans, approved metal ties shall be provided horizontally at 24 inches (600mm) on centers (maximum).

Mortar joints shall be straight, clean, and uniform in thickness. Unless otherwise specified or detailed on the Plans, horizontal and vertical joints shall be approximately 3/8 inch (10mm) thick with full mortar coverage on the face shells and on the webs surrounding cells to be filled. Units shall be laid with "push joints". No slushing or grouting of a joint will be permitted, nor shall a joint be made by working in mortar after the units have been laid.
Exposed walls shall have joints tooled with a round bar (or V-shaped bar) to produce a dense, slightly concave surface well-bonded to the block at the edges. Tooling shall be done when the mortar is partially set but still sufficiently plastic to bond. All tooling shall be done with a tool which compacts the mortar, pressing the excess mortar out of the joint rather than dragging it out.

If it is necessary to move a block so as to open a joint, the block shall be removed from the wall, cleaned, and set in fresh mortar.

303-4.1.3 Placing Reinforcing Steel. Reinforcing steel shall be placed as indicated on the Plans. Splices shall be lapped a minimum of 40 diameters, except that dowels other than column dowels need be lapped only 30 diameters. Column dowels shall lap 50 diameters.

Outside horizontal steel shall lap around corners 40 diameters and be carried through columns unless otherwise shown on the Plans. Inside horizontal steel shall extend as far as possible and bend into corner core. A dowel shall be provided in the foundation for each vertical bar.

Where horizontal courses are to be filled, metal stops shall be used. Use of paper stops will not be permitted. All horizontal reinforcing steel shall be laid in a course of bond beam blocks filled with grout.

Vertical cores containing steel shall be filled solid with grout, and thoroughly rodded.

Where knockout blocks are used, steel shall be erected and wired in place before three courses have been laid. Vertical cores at steel locations shall be filled as construction progresses.

Where knockout blocks are not used, vertical cores at steel locations shall be filled in lifts of not more than 4 feet (1.2m) The maximum height of pour shall be 8 feet (2.4m). Cores shall be cleaned of debris and mortar and shall have reinforcing steel held straight and in place. If ordered by the Engineer, inspection and cleanout holes shall be provided at the bottom of each core to be filled.

Reinforcing steel shall be inspected prior to placing grout.

303-4.1.4 Protection and Curing. During construction operations, all adjoining work shall be protected from mortar droppings. Concrete block masonry shall be protected from the sun and rain. When approved in advance by the Engineer, completed masonry construction may be protected with a curing compound. Except in hot weather when it may be fog sprayed sufficiently to dampen the surface, finished concrete block masonry shall not be wetted.

303-4.1.5 Measurement and Payment. Payment for concrete block masonry will be made as shown in the Bid.

Unless otherwise specified, concrete block masonry walls will be measured parallel to the finished grade, deducting the widths of full-height openings.

303-4.2 Brick Masonry.

303-4.2.1 Materials. Unless otherwise specified, brick masonry shall be constructed of Grade MW brick and cement mortar as described in 202-1.

303-4.2.2 Bricklaying. Brick shall be clean, wetted immediately before laying, and shall be laid on a full mortar bed with "push joints". In no event will slushing or grouting of a joint be permitted, nor shall a joint be made by working in mortar after the brick has been laid. Joints between courses of bricks shall be of a uniform thickness of 3/8 inch (10mm) as nearly as possible. Joints on surfaces which are not to be plastered, or on any surface that will be exposed upon completion of the work, shall be neatly struck and pointed. In all cases, the work shall be well-bonded, and if new work is to be joined to the existing or unfinished work, the contact surfaces of the latter shall first be properly cleaned and moistened.

Brickwork shall not be constructed upon a concrete foundation until at least 24 hours after such foundation has been placed. No brick shall be laid in water nor shall water be permitted to stand or run on any brickwork until the mortar has thoroughly set, except as provided in 303-4.2.3.
Attachment D

Phase 1 ESA Conclusions and Recommendations
7. Summary

7.1 Findings and Recommendations

Based on our evaluation of current Site conditions and the review of available Site records, we have identified several recognized environmental conditions, defined by the ASTM as evidence of a past, current, or future potential for a release of oil and/or hazardous materials (OHM) at the Site. We have also identified several potential environmental conditions. The conditions are summarized below and categorized as sitewide and property-specific.

Recognized Environmental Conditions

Sitewide: The application of pesticides containing hazardous substances is considered a recognized environmental condition under the ASTM Standard. However, permitted use of such pesticides is exempt from state and federal reporting as releases of hazardous substances to the environment.

Sitewide: The presence of agricultural burn areas and debris areas described in Section 5.2.4 is considered a recognized environmental condition under the ASTM Standard. Several burn areas and debris areas were identified at the Site, many of them containing metal debris in addition to ash. The presence of hazardous substances from strictly agricultural burning is exempt from reporting as a release under state and federal regulations because agricultural burning is permitted at the Site. The presence of hazardous substances in burn areas where non-agricultural material is observed could potentially represent a reportable release, because the burning of such material is not permitted. Burn areas containing debris may represent a release if hazardous substances are present above reportable quantities specified in California Health and Safety Code section 25359.4.

Sitewide: The potential presence of mercury due to its known historic use regionally for gold mining represents a recognized environmental condition at the Site. Residual mercury concentrations may exist at sitewide or regional background levels that would not affect the proposed use of the Site. Testing for mercury is not warranted because there is no evidence of a discrete ongoing source of contamination, localized depositions, or adverse conditions that may be caused by mercury.

5514 - 5536 Feather River Boulevard (Clutch Cargo). This property is currently the location of an auto repair and dismantling facility. Stained soil and improper storage of oils was noted at this facility by EHD in early 2006. The facility is currently under a court agreement
to remove surficial soil and correct other violations. The presence of stained soil and stored petroleum represents a recognized environmental condition.

- **Recommendation:** If this area is disturbed for levee improvements, we recommend proper removal and disposal of contained materials, and screening of soil in the area for the potential presence of residual petroleum contamination.

1900 Feather River Boulevard (Shoei Foods). A recognized environmental condition on this property is present at a vehicle maintenance facility adjacent to the levee, consisting of outdoor storage of motor oil, waste oil, and hydraulic fluid in dispensing barrels, and stained soil in the area of the storage barrels, waste oil tank, and oil-changing pit.

- **Recommendation:** If this area is disturbed for levee improvements, we recommend proper removal and disposal of contained materials, and screening of soil in the area for the potential presence of residual petroleum contamination.

**Potential Recognized Environmental Conditions**

909 Myrna Avenue (LCWD). One 110-gallon diesel fuel AGT is located on this property. No further assessment or recommendations were made for this condition because this property will not be affected by the levee strengthening.

5834 Riverside Avenue. Approximately 25 drums were observed to be stored on or adjacent to the Riverside Restoration Center (church) grounds. No interview or on-property inspection was performed on this property. No records of materials were on file at EHD for this location.

- **Recommendation:** If this area is disturbed for levee improvements, we recommend proper inventory, removal and disposal of contained materials, and screening soil in the area for the potential presence of residual contamination.

**General Recommendations:**

In addition to the above property-specific findings, we recommend the following activities prior to or during construction:

- **Mixing or tilling ash and wood from agricultural burning (with no evidence of other materials) into existing topsoil, in areas of required project excavation. This is standard agricultural practice and can be accomplished by simultaneous removal of ash with topsoil as proposed for site redevelopment. However, ash material associated with debris piles should be segregated and removed from the Site as described below.**
• Removal of non-agricultural debris piles in areas of required project excavation, and disposal of the material at an offsite landfill. Removal of ash associated with debris piles in areas of required project excavation is recommended. The associated soil will likely be acceptable at a Class II landfill; however, analytical testing of soil will be required to fulfill landfill permit requirements and confirm that the material is not a RCRA-hazardous waste. We recommend analytical testing of soil beneath debris piles containing potential sources of contamination such as automotive debris or containers after removal of the debris or containers, to confirm soil conditions and evaluate whether a reportable release exists.

• Clearing site structures of household containers, drums, and aboveground tanks containing petroleum or hazardous materials. We recommend analytical testing of soil beneath any AGTs or drums in areas of required project excavation, to confirm the condition of soil excavated or left in place and evaluate whether a reportable release exists.

• Monitoring of soil conditions in the area of dense brush, soil piles or plowings, irrigation wellheads, pump stations, and aboveground storage tanks if disturbed during construction. Visibility was limited in areas of dense brush, and there is a higher likelihood of subsurface soil contamination in equipment maintenance and fuel storage areas.

• In areas of required project excavation: inventory, abandon, and decommission residential septic systems and leach fields, and residential and irrigation wells in accordance with regulations. These features may be a potential conduit for contaminant transport.

• In areas of required project excavation: excavate test pits in leach field locations and perform visual screening for the potential presence of hazardous materials in underlying soil.

Testing for mercury and pesticides is not warranted because there is no evidence of a discrete ongoing source of contamination such as spilled material. Residual mercury and pesticide concentrations may exist at sitewide or regional background levels that would not affect the proposed use of the Site.

7.2 Data Gaps and Uncertainties

The following data gaps and uncertainties regarding the Site were identified:
• The direction of groundwater flow is estimated to be easterly based on the regional concept that the Feather River is the main source of aquifer recharge and drawdown is induced east of the levee by agricultural wells. We did not identify any comprehensive groundwater studies for or within the Site. The findings of this report do not rely on this assumption, because known releases east of the Site are of an extent that would not be of concern at the Site regardless of groundwater flow direction.

• Properties on Riverside Drive were not observed in detail, and owner/operators were not interviewed. Contents of drums stored onsite at properties on Riverside Drive (Section 5.2.5) were not inventoried.

7.3 Statement of Certification

In accordance with ASTM E1527-05, this assessment was conducted by Environmental Professionals as defined in the EPA Standards and Practices for All Appropriate Inquiries (40 CFR 32.10). Resumes for staff involved in the preparation of this report are attached in Appendix F.

7.4 Property-Specific Compilations

As described in Section 2.3.1, assessment of privately-owned land within the Site was performed under access agreement. Property-specific compilations were prepared so that the information may be reported to private landowners where required by the access agreements. The compilations consist of information extracted from this report relative to the respective properties. The compilations are included in Appendix G.
Attachment E

Storm Water Pollution Prevention Plan
Stormwater Pollution Prevention Plan is not available at this time and will be issued as a bid addendum