

**COUNTY OF EL DORADO, CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

CONTRACT DOCUMENTS

INCLUDING
**NOTICE TO BIDDERS, SPECIAL PROVISIONS,
PROPOSAL, AND CONTRACT
FOR**

**GREEN VALLEY ROAD AT TENNESSEE CREEK
BRIDGE REPLACEMENT PROJECT**

Near Rescue, California

CONTRACT NO. PW 09-30407 / CIP NO. 77109

Federal Aid Projects

BRLS 5925 (030)

HSIPL 5925 (060)

FOR USE WITH
STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION,
STANDARD SPECIFICATIONS AND STANDARD PLANS
MAY 2006

BID OPENING DATE: FEBRUARY 14th, 2011 – 2:00 p.m.

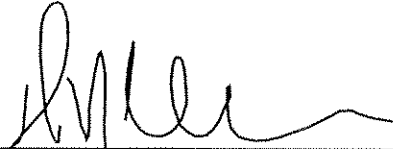
**COUNTY OF EL DORADO, CALIFORNIA
DEPARTMENT OF TRANSPORTATION**

**GREEN VALLEY ROAD AT TENNESSEE CREEK
BRIDGE REPLACEMENT PROJECT**

CONTRACT NO. PW 09-30407 / CIP NO. 77109

The various portions of the Contract Documents have been prepared under the direction of the following licensed Civil Engineer(s), in accordance with California Business and Professions Code § 6735.

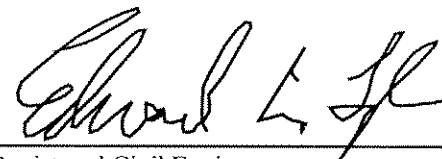
ROADWAY IMPROVEMENTS:



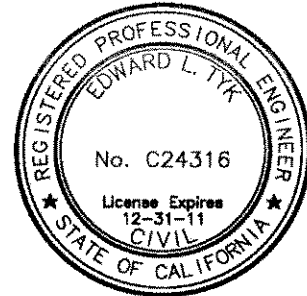
Registered Civil Engineer



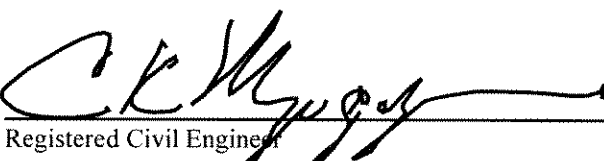
STRUCTURE IMPROVEMENTS:



Registered Civil Engineer



WATER IMPROVEMENTS:



Registered Civil Engineer



Standard Plans List

The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. Applicable Revised Standard Plans (RSP) and New Standard Plans (NSP) indicated below are available at the following Caltrans website:
http://www.dot.ca.gov/hq/esc/oe/project_plans/HTM/06_plans_disclaim_US.htm

GENERAL ROAD WORK (Miscellaneous)

A10A	Acronyms and Abbreviations (A-L)
A10B	Acronyms and Abbreviations (M-Z)
A10C	Symbols (Sheet 1 of 2)
A10D	Symbols (Sheet 2 of 2)
A20A	Pavement Markers and Traffic Lines, Typical Details
A20B	Pavement Markers and Traffic Lines, Typical Details
A20C	Pavement Markers and Traffic Lines, Typical Details
A20D	Pavement Markers and Traffic Lines, Typical Details
A24A	Pavement Markings - Arrows
A24B	Pavement Markings - Arrows
RSP A24C	Pavement Markings – Symbols and Numerals
A24D	Pavement Markings – Words
A24E	Pavement Markings – Words and Crosswalks
A62B	Limits of Payment for Excavation and Backfill – Bridge Surcharge and Wall
A62C	Limits of Payment for Excavation and Backfill - Bridge
A62D	Excavation and Backfill – Concrete Pipe Culverts
A62DA	Excavation and Backfill – Concrete Pipe Culverts
A62F	Excavation and Backfill – Metal and Plastic Culverts
A73A	Object Markers
A73B	Markers
A73C	Delineators, Channelizers and Barricades
A77A1	Metal Beam Guard Railing – Standard Railing Section (Wood Post with Wood Block)

A77B1	Metal Beam Guard Railing – Standard Hardware
A77C1	Metal Beam Guard Railing – Wood Post and Wood Block Details
A77C3	Metal Beam Guard Railing – Typical Line Post Embedment and Hinge Point Offset Details
A77C4	Metal Beam Guard Railing – Typical Railing Delineation and Dike Positioning Details
A77E1	Metal Beam Guard Railing – Typical Layouts for Embankments
A77E4	Metal Beam Guard Railing – Typical Layouts for Embankments
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A77F5	Metal Beam Guard Railing – Typical Layouts for Structure Departure
A77J1	Metal Beam Guard Railing Connections to Bridge Railings without Sidewalks Details No. 1
A77J4	Metal Beam Guard Railing Transition Railing (Type WB)
A77L2	Metal Beam Railing Terminal System (Type SKT)
A77L5	Metal Beam Railing Terminal System (Type FLEAT)
A86	Barbed Wire and Wire Mesh Fences
A87B	Asphalt Concrete Dikes

GENERAL ROAD WORK (Pavements)

P70	Asphalt Concrete Paving (Longitudinal Tapered Notched Wedge Joint)
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GENERAL ROAD WORK (Drainage)

D87A	Corrugated Metal Pipe Downdrain Details
D87D	Overside Drains
D88	Construction Loads on Culverts
D94A	Metal and Plastic Flared End Sections
RSP D97E	Corrugated Metal Pipe Coupling Details No. 5- Standard Joint

RSP D97F Corrugated Metal Pipe Coupling Details No. 6- Positive Joint

RSP D97G Corrugated Metal Pipe Coupling Details No. 7- Downrain

GENERAL ROAD WORK (Planting and Irrigation)

H3 Planting and Irrigation Details

GENERAL ROAD WORK (Temporary Facilities)

RSP T1B Temporary Crash Cushion, Sand Filled (Bidirectional)

T3 Temporary Railing (Type K)

RSP T13 Traffic Control System for Lane Closure on Two Lane Conventional Highways

T56 Temporary Water Pollution Control Details (Temporary Fiber Roll)

T59 Temporary Water Pollution Control Details (Temporary Concrete Washout Facility)

BRIDGE

B0-1 Bridge Details

B0-3 Bridge Details

B0-5 Bridge Details

B0-13 Bridge Details

B2-3 16” And 24” Cast-In-Drilled-Hole Concrete Pile

RSP B6-21 Joint Seals (Maximum Movement Rating = 2”)

B7-5 Deck Drains

B11-55 Concrete Barrier Type 732

ROADSIDE SIGNS

RS1 Roadside Signs – Typical Installation Details No. 1

RS2 Roadside Signs – Wood Post, Typical Installation Details No. 2

RS4 Roadside Signs – Typical Installation Details No. 4

S94 Roadside Single Sheet Aluminum Signs, Rectangular Shape

SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS

RSP ES-1A	Electrical Systems (Symbols And Abbreviations)
RSP ES-1B	Electrical Systems (Symbols And Abbreviations)
RSP ES-1C	Electrical Systems (Symbols And Abbreviations)
RSP ES-2C	Electrical Systems (Service Equipment Notes, Type III Series)
RSP ES-2D	Electrical Systems (Service Equipment and Typical Wiring Diagram, Type III – A Series)
RSP ES-3C	Electrical Systems (Controller Cabinet Details)
ES-4A	Electrical Systems (Signal Heads and Mountings)
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RSP ES-4C	Electrical Systems (Signal Heads and Mountings)
RSP ES-4D	Electrical Systems (Signal Heads and Mountings)
ES-4E	Electrical Systems (Signal Faces and Mountings)
RSP ES-5A	Electrical Systems (Detectors)
ES-5B	Electrical Systems (Detectors)
ES-5C	Electrical Systems (Detectors)
RSP ES-5D	Electrical Systems (Detectors)
RSP ES-7A	Electrical Systems (Signal Standards Push Button Posts and Type 15TS Standard)
RSP ES-7B	Electrical Systems (Signal and Lighting Standard – Type 1 Standard and Equipment Numbering)
RSP ES-7E	Electrical Systems (Signal and Lighting Standard – Case 3 Arm Loading, Wind Velocity = 100 mph, Arm Lengths 15' to 14')
RSP ES-7F	Electrical Systems (Signal and Lighting Standard – Case 4 Arm Loading, Wind Velocity = 100 mph, Arm Lengths 25' to 45')
RSP ES-7M	Electrical Systems (Signal and Lighting Standards – Details No. 1)
ES-7N	Electrical Systems (Signal and Lighting Standards – Details No. 2)

RSP ES-8	Electrical Systems (Pull Box Details)
RSP ES-11	Electrical Systems (Foundation Installations)
RSP ES-13A	Electrical Systems (Splicing Details)
RSP ES-13B	Electrical Systems (Wiring Details and Fuse Ratings)

**DEPARTMENT OF TRANSPORTATION
COUNTY OF EL DORADO, CALIFORNIA**

NOTICE TO BIDDERS

NOTICE IS HEREBY GIVEN by the County of El Dorado, State of California, that sealed bids for work in accordance with the Project Plans (Plans) and Contract Documents designated:

GREEN VALLEY ROAD AT TENNESSEE CREEK – BRIDGE REPLACEMENT PROJECT

CONTRACT No. PW 09-30407, CIP No. 77109

will be received by the Clerk to the Board of Supervisors, at the Board of Supervisors Office, 330 Fair Lane, Placerville, California, until **February 14th at 2:00 P.M.**, at which time bids will be publicly opened and read by the El Dorado County Department of Transportation.

No Bid may be withdrawn after the time established for receiving bids or before the award and execution of the Contract, unless the award is delayed for a period exceeding sixty (60) calendar days. Bids shall be executed in accordance with the instructions given and forms provided in the bound Contract Documents furnished by the El Dorado County Department of Transportation. The Proposal shall not be detached and shall be submitted with the Contract Documents bid package in its entirety. All bids must be clearly marked on the envelope:

**"PROPOSAL FOR GREEN VALLEY ROAD AT TENNESSEE CREEK
BRIDGE REPLACEMENT PROJECT"**

CONTRACT NO. PW 09-30407, CIP NO. 77109

TO BE OPENED AT 2:00 P.M. – MONDAY, FEBRUARY 14th, 2011

LOCATION/DESCRIPTION OF THE WORK: The project is located along Green Valley Road, in Rescue in El Dorado County. The Work to be done is shown on the Plans, and generally consists of, but is not limited to:

- A. Construction of a new replacement bridge over Tennessee Creek; removal of the existing structure; construction of new 6" and 20" waterline segments; grading and paving for the new bridge approaches; realignment and widening of Green Valley Road; and improvements and signalization of the intersection of Green Valley Road and North Shingle Road. Other items or details not mentioned above, that are required by the plans, Standard Plans, Standard Specifications, or these Special Provisions shall be performed, constructed or installed.
- B. Bids are required for the entire Work described herein.
- C. The contract time shall be TWO HUNDRED SEVENTY FIVE (275) WORKING DAYS.
- D. For bonding purposes the anticipated project cost is less than \$ 4,000,000.
- E. A pre-bid meeting is scheduled for this project on **Wednesday, January 26th, 2011 at 1:30 P.M.** at the El Dorado County Department of Transportation, 2441 Headington Road, Placerville, CA. The meeting will be held in the downstairs conference room. Attendance at the pre-bid meeting is not mandatory.

OBTAINING OR INSPECTING CONTRACT DOCUMENTS: The Contract Documents and Plans may be examined at the El Dorado County Department of Transportation or may be purchased in person or by mail from the Department of Transportation, 2850 Fairlane Court, Placerville, California, 95667. The purchase price of each set of Contract Documents and Plans (half size plans are included in each set) is EIGHTY DOLLARS (\$80.00) and is not refundable. To receive Contract Documents and Plans by mail, send request and payment prior to shipping and include an additional TWENTY DOLLARS (\$20.00), for a total of ONE HUNDRED DOLLARS (\$100.00), to include shipping and handling.

The contract cross-sections and an Informational Handout containing the Foundation Investigation and Addenda, Hydraulic Study and Waterline Pothole Data are available to Contract Document holders. The contract cross-sections and the Informational Handout will be provided to Contract document holders as .pdf files on the DOT's website: <http://www.edcgov.us/Government/DOT/Bids.aspx>.

CONTRACTORS LICENSE CLASSIFICATION: Bidders shall be properly licensed to perform the Work pursuant to the Contractors' State License Law (Business and Professions Code Section 7000 et seq.) and shall possess a **CLASS A** license or equivalent combination of Classes required by the categories and type of Work included in the Contract Documents and Plans at the time the Contract is awarded, and shall maintain a valid license through completion and acceptance of the Work, including the guarantee and acceptance period. Failure of the successful Bidder to obtain proper adequate licensing for an award of the Contract shall constitute a failure to execute the Contract and shall result in the forfeiture of the Bidder's security.

BUSINESS LICENSE: The County Business License Ordinance provides that it is unlawful for any person to furnish supplies or services, or transact any kind of business in the unincorporated territory of El Dorado County without possessing a County business license unless exempt under County Ordinance Code Section 5.08.070. The Bidder to whom an award is made shall comply with all of the requirements of the County Business License Ordinance, where applicable, prior to beginning work under this Contract and at all times during the term of this Contract.

REQUIRED LISTING OF PROPOSED SUBCONTRACTORS: Each Proposal shall have listed therein the name, contractor's license number and address of each subcontractor to whom the bidder proposes to subcontract portions of the work in an amount in excess of 0.5% of the total bid or \$10,000, whichever is greater, in accordance with the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code. The Bidder shall also describe in the Subcontractor Listing the work to be performed by each subcontractor listed. The work to be performed by the subcontractor shall be shown by listing the bid item number, bid item description, and portion of the work to be performed by the subcontractor in the form of a percentage calculated by dividing the work to be performed by the subcontractor by the respective bid item amount(s) (not by the total bid price). The percentage of each bid item subcontracted may be submitted with the Bidder's bid or sent via email or fax to Janel Gifford, El Dorado County Department of Transportation, email-Janel.Gifford@edcgov.us, Fax-(530) 295-2655 by 4:00 p.m. on the first business day after the bid opening. The email or fax shall contain the name of each subcontractor submitted with the Bidder's bid along with the bid item number, the bid item description, and the percentage of each bid item subcontracted, as described above. At the time the contract is awarded, all listed subcontractors shall be properly licensed to perform their designated portion of the work. The bidder's attention is directed to other provisions of the Act related to the imposition of penalties for failure to observe its provisions by using unauthorized subcontractors or by making unauthorized substitutions.

BUY AMERICA: This project is subject to the "Buy America" provisions of the Surface Transportation Assistance Act of 1982, as amended by the Intermodal Surface Transportation Efficiency Act of 1991.

BRAND-SPECIFIC REQUIREMENT: The contract bid documents specify brand-specific products. The Board of Supervisors has made the required finding(s) that the Naztec, Inc. traffic signal controller is designated in the contract bid documents as brand-specific in order to match other products in use on a particular public improvement either completed or in the course of completion and that the TESCO Controls, Inc. Battery Backup and Service Cabinet is designated in the contract documents as brand-specific in order to obtain the necessary item that is only available from TESCO Controls, Inc. Where the contract bid documents require a brand-specific item, Contractor must quote brand and model indicated; alternative brands will not be accepted.

DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION: Bidders are advised that, as required by federal law, the County of El Dorado has implemented Disadvantaged Business Enterprise requirements for Underutilized Disadvantaged Business Enterprises (UDBE). Section 2, "Proposal Requirements and Conditions," under subsection titled "Disadvantaged Business Enterprises (DBE)" and Section 5, "General," under subsection titled "Performance of Subcontractors" of these special provisions cover the UDBE requirements.

Bidder will take all necessary affirmative steps to assure that minority firms, women's business enterprises and labor surplus area firms are used when possible.

The Underutilized Disadvantaged Business Enterprise (UDBE) contract goal is **9.29%**.

Bidder's attention is directed to the UDBE Good Faith Effort Submittal Information Handout at <http://www.edcgov.us/Government/DOT/DBE.aspx>

NONDISCRIMINATION: Attention is directed to the following Notice that is required by Chapter 5 of Division 4 of Title 2, California Code of Regulations.

NOTICE OF REQUIREMENT FOR NONDISCRIMINATION PROGRAM

(GOVERNMENT CODE SECTION 12990)

Attention is further directed to the "Nondiscrimination Clause", set forth in Section 7-1.01A(4), "Labor Nondiscrimination," of the Standard Specifications, which is applicable to all nonexempt State contracts and subcontracts, and to the "Standard California Nondiscrimination Construction Contract Specifications" set forth therein. The specifications are applicable to all nonexempt State construction contracts and subcontracts of \$5,000 or more.

Attention is also directed to the Special Provisions and to the draft Agreement contained in these Contract Documents for additional nondiscrimination and fair employment practices provisions that will apply to this federal-aid contract.

The Department of Transportation hereby notifies all Bidders that it will affirmatively ensure that in any Contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, national origin, religion, age, or disability in consideration for the award.

PREVAILING WAGE REQUIREMENTS:

In accordance with the provisions of California Labor Code Sections 1770 et seq., including but not limited to Sections 1773, 1773.1, 1773.2, 1773.6, and 1773.7, the general prevailing rate of wages in the county in which the Work is to be done has been determined by the Director of the California Department of Industrial Relations. These wage rates appear in the California Department of Transportation publication entitled General Prevailing Wage Rates.

Interested parties can obtain the current wage information by submitting their requests to the Department of Industrial Relations, Division of Labor Statistics and Research, PO Box 420603, San Francisco CA 94142-0603, Telephone (415) 703-4708 or by referring to the website at <http://www.dir.ca.gov/dlsr/PWD>. The rates at the time of the bid advertisement date of a project will remain in effect for the life of the project in accordance with the California Code of Regulations, as modified and effective January 27, 1997.

Copies of the general prevailing rate of wages in the county in which the Work is to be done are also on file at the Department of Transportation's principal office, and are available upon request, and in case of projects involving federal funds, federal wage requirements as predetermined by the United States Secretary of Labor have been included in the Contract Documents. Addenda to modify the Federal minimum wage rates, if necessary, will be issued as described in the Project Administration section of this Notice to Bidders.

In accordance with the provisions of Labor Code 1810, eight (8) hours of labor shall constitute a legal day's work upon all work done hereunder, and Contractor and any subcontractor employed under this Contract shall conform to and be bound by the provisions of Labor Code Sections 1810 through 1815.

In the case of federally funded projects, where federal and state prevailing wage requirements apply, compliance with both is required. This project is funded in whole or part by federal funds. Contractor's attention is directed to Section 14 of the Special Provisions and the requirements of, and compliance with the Copeland Act (18 U.S.C. 874 and 29 CFR Part 3), the Davis-Bacon Act (40 U.S.C. 276a to 276a-7 and 29 CFR Part 5), and the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330 and 29 CFR Part 5).

If there is a difference between the minimum wage rates predetermined by the Secretary of Labor and the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for similar classifications of labor, Contractor and subcontractors shall pay not less than the higher wage rate. The Department will not accept lower State wage rates not specifically included in the Federal minimum wage determinations. This includes "helper" (or other classifications based on hours of experience) or any other classification not appearing in the Federal wage determinations. Where Federal wage determinations do not contain the State wage rate determination otherwise available for use by Contractor and subcontractors, Contractor and subcontractors shall pay not less than the federal minimum wage rate which most closely approximates the duties of the employees in question.

The U.S. Department of Transportation (USDOT) provides a toll-free "hotline" service to report bid rigging activities. Bid rigging activities can be reported Mondays through Fridays, between 8:00 a.m. and 5:00 p.m., eastern time, at (800) 424-9071. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report these activities. The "hotline" is part of the US DOT's continuing effort to identify and investigate highway construction

contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

BID SECURITY: A bid security shall be provided with each bid. Bid security shall be in an amount of not less than ten percent (10%) of the total amount of the Bid for bid and shall be cash, a certified check or cashier's check drawn to the order of the County of El Dorado or a Bidder's Bond executed by a surety satisfactory to the County of El Dorado **on the form provided in the Proposal section of these Contract Documents (do not detach the form).**

BID PROTEST PROCEDURE: The protest procedure is intended to handle and resolve disputes related to the bid award for this project pursuant to Title 49 Code of Federal Regulations Part 18 Section 18.36 (b) (12)(i)-(ii) and County of El Dorado policies and procedures. A protestor must exhaust all administrative remedies with the County of El Dorado before pursuing a protest with a Federal Agency. Reviews of protests by the Federal agency will be limited to:

- (i.) Violations of Federal law or regulations and the standards of 49 CFR Part 18 Section 18.36 (b) (12) (i)-(ii). Violations of State of California or local law will be under the jurisdiction of the State of California or the County of El Dorado; and
- (ii.) Violation of the County of El Dorado's protest procedures for failure to review a complaint or protest. Protests received by the Federal agency other than those specified above will be referred to the County of El Dorado.

The protest procedure is an extension of the formal bid process and allows those who wish to protest the recommendation of an award after bid the opportunity to be heard.

Policy: Upon completion of the bid evaluation, the Department of Transportation shall notify all bidders of the recommendation of award, the basis therefore, and the date and time on which the recommendation for award will be considered and acted upon by the Board of Supervisors. All bidders may attend the Board of Supervisors meeting at the time the agenda item is considered, address the Board of Supervisors, and be heard.

Procedure: If a bidder wishes to protest the award, the procedure shall be as follows:

1. The Department of Transportation will review the bids received in a timely fashion under the terms and conditions of the Notice to Bidders, and notify the bidders in writing, at the address designated in the bid, of its recommendation including for award or rejection of bids ("All Bidders Letter").
2. Within five (5) working days from the date of the "All Bidders Letter," the bidder protesting the recommendation for award shall submit a letter of protest to the County of El Dorado, Department of Transportation, Attention Janel Gifford, 2441 Headington Road, Placerville, CA 95667, and state in detail the basis and reasons for the protest. The bidder must provide facts to support the protest, including any evidence it wishes to be considered, together with the law, rule, regulation, or criteria on which the protest is based.
3. If the Department of Transportation finds the protest to be valid, it may modify its award recommendations and notify all bidders of that decision. If the Department of Transportation does not agree with the protest, or otherwise fails to resolve the protest, the Department of Transportation will notify the bid protestor and all interested parties of its decision and the date and time that the recommendation for award will be agendized for the Board of Supervisors' consideration and action. The Department of Transportation shall also include in its report to the Board of Supervisors the details of the bid protest.
4. The bidder may attend the Board of Supervisors meeting at which the recommendation and bid protest will be considered. The Board of Supervisors will take comment from the bidder, staff, and members of the public who wish to speak on the item. In the event that the bidder is not in attendance at that time, the bid protest may be dismissed by the Board of Supervisors without further consideration of the merits; and

In its discretion, the County of El Dorado may accept or reject any bids. The decision of the Board of Supervisors shall be final in accepting or rejecting the bid protest, awarding the bid, or rejecting any or all bids.

AWARD OF CONTRACT: Bids will be considered for award by the Board of Supervisors. The County of El Dorado reserves the right after opening bids to reject any or all bids, to waive any irregularity in a bid, or to make award to the lowest responsive, responsible Bidder and reject all other bids, as it may best serve the interests of the County.

As a condition of award, the successful Bidder will be required to submit bonds and evidence of insurance prior to execution of
Green Valley Road at Tennessee Creek - Bridge Replacement Project
Contract No. PW 09-30407 / CIP No. 77109
January 11, 2011

County of El Dorado, DOT
Notice to Bidders
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10-0299.2B.11

the Agreement by the County. Failure to meet this requirement shall constitute abandonment of the Bid by the Bidder and forfeiture of the Bidder's security. Award will then be made to the next lowest, responsive, responsible Bidder.

ESCROW BID DOCUMENTS: The Bidders' attention is directed to the Special Provision in the Contract Documents entitled "Escrow Bid Documents" for the provisions requiring the successful bidder to submit in a sealed lockable container to the Department of Transportation all documentary information used to prepare its bid.

RETAINAGE FROM PAYMENTS: The Contractor may elect to receive one hundred percent (100%) of payments due under the Contract from time to time, without retention of any portion of the payment by the County, by depositing securities of equivalent value with the County in accordance with the provisions of Section 22300 of the Public Contract Code. Securities eligible for deposit hereunder shall be limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.

PROJECT ADMINISTRATION: All communications relative to the Contract Documents and Plans shall be directed to Janel Gifford in the El Dorado County Department of Transportation, 2441 Headington Road, Placerville, CA 95762, telephone: (530) 642-4988. No oral responses to any questions concerning the content of the Plans and Contract Documents will be given. All responses will be in the form of written addenda to the Contract Documents and Plans or written responses to bidders' inquiries. Responses to bidders' inquiries and addenda will be posted on the Department of Transportation website at <http://www.edcgov.us/Government/DOT/bids.aspx>. It is the bidders' responsibility to check this website for responses and addenda during the bid period.

Inquiries or questions based on alleged patent ambiguity of the plans, specifications, or estimate must be communicated as a bidder inquiry prior to bid opening. Any such inquiries or questions, submitted after bid opening will not be treated as a bid protest.

BY ORDER OF the Director of the Department of Transportation, County of El Dorado, State of California.

Authorized by the Board of Supervisors on January 11th, 2011, at Placerville, California.

By _____
James W. Ware, P.E.
Director of Transportation
County of El Dorado

**DEPARTMENT OF TRANSPORTATION
COUNTY OF EL DORADO, STATE OF CALIFORNIA**

**GREEN VALLEY ROAD AT TENNESSEE CREEK
BRIDGE REPLACEMENT PROJECT**

Contract No. PW 09-30407 / CIP No. 77109

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**DEPARTMENT OF TRANSPORTATION
COUNTY OF EL DORADO, CALIFORNIA**

**SPECIAL PROVISIONS
ANNEXED TO CONTRACT No. PW 09-30407 / CIP No. 77109**

SECTION 1. SPECIFICATIONS AND PLANS

1-1.01 GENERAL

The work embraced herein shall be done in accordance with the Standard Specifications dated May 2006 and the Standard Plans dated May 2006, of the Department of Transportation (Caltrans) insofar as the same may apply, County of El Dorado Design and Improvement Standards Manual, revised March 8, 1994 including Resolutions 199-91 and 58-94 to adopt changes to the Design and Improvement Standards Manual, El Dorado Irrigation District Technical Specifications and these special provisions.

Attention is directed to Appendix A of these special provisions containing Amendments to May 2006 Standard Specifications as issued by the State of California Department of Transportation. These Amendments are hereby incorporated into the contract documents to replace or supplement those sections of the Standard Specifications where an Amendment exists, and are to be treated the same as the Standard Specifications in relation to other Contract Documents.

Amendments to the Standard Specifications set forth in these special provisions shall be considered as part of the Standard Specifications for the purposes set forth in Section 5-1.04, "Coordination and Interpretation of Plans, Standard Specifications and Special Provisions," of the Standard Specifications. Whenever either the term "Standard Specifications is amended" or the term "Standard Specifications are amended" is used in the special provisions, the indented text or table following the term shall be considered an amendment to the Standard Specifications. **In case of conflict between such amendments and the Standard Specifications, the amendments shall take precedence over and be used in lieu of the conflicting portions.**

In case of conflict between the Standard Specifications, the Amendments to Standard Specifications, and these special provisions, the special provisions shall take precedence over and be used in lieu of the conflicting portions.

1-1.02 DEFINITIONS AND TERMS

As used in the contract documents, unless the contract otherwise requires, the following terms have the following meaning:

APPROVAL OF THE CONTRACT – Execution of the contract by the County of EL Dorado Board of Supervisors.

CALTRANS - The State of California Department of Transportation.

CONTRACTOR - Contractor responsible for constructing the Green Valley Road at Tennessee Creek Bridge Reconstruction project.

COUNTY – The County of El Dorado, a political subdivision of the State of California

DOT / DEPARTMENT / DEPARTMENT OF TRANSPORTATION / RECIPIENT - The Department of Transportation as created by the Board of Supervisors for the County of El Dorado.

US DOT – The United States of America Department of Transportation.

DEPUTY DIRECTOR - The Deputy Director of Design Engineering Division or Deputy Director of Transportation Planning and Land Development in the Department of Transportation for the County of El Dorado.

DIRECTOR OF TRANSPORTATION - The Director or Interim Director of Transportation in the Department of Transportation for the County of El Dorado.

EID – El Dorado Irrigation District.

ENGINEER / STATE HIGHWAY ENGINEER - The Director of Transportation in the Department of Transportation for the County of El Dorado, or his/her authorized representative (Resident Engineer).

FHWA – Federal Highway Administration.

LABORATORY - The established laboratory of the El Dorado County Department of Transportation or laboratories authorized by the Engineer to test materials and work involved in the contract.

MUTCD –California Manual on Uniform Traffic Control Devices, (FHWA’s MUTCD 2003 Edition including Revision 1 and 2, as amended for use in California, also called the California MUTCD 2010).

PLANS -The improvement plans titled “**GREEN VALLEY ROAD AT TENNESSEE CREEK BRIDGE RECONSTRUCTION PROJECT**” approved by El Dorado County Department of Transportation and the Standard Plans.

STANDARD PLANS - The May 2006 edition of the Standard Plans of the State of California, Department of Transportation (Caltrans).

STANDARD SPECIFICATIONS - The May 2006 edition of the Standard Specifications for the State of California, Department of Transportation (Caltrans).

STATE - County of El Dorado.

All other definitions and terms are in accordance with the Standard Specifications.

SECTION 2. PROPOSAL REQUIREMENTS AND CONDITIONS

2-1.01 GENERAL

The bidder’s attention is directed to the provisions in Section 2, "Proposal Requirements and Conditions," of the Standard Specifications and these special provisions for the requirements and conditions which it must observe in the preparation of the proposal form and the submission of the bid.

The first sentence of the second paragraph in Section 2-1.05, "Proposal Forms," of the Standard Specifications is amended to read:

“The Proposal form is bound together with the Notice to Bidders, Special Provisions, Agreement and attendant documents.”

A Proposal shall be deemed “Non-Responsive” if the proposal is submitted without the entire Contract Document package attached.

In addition to whom the bidder proposes to directly subcontract portions of the Work as required in accordance with Section 2-1.054, “Required Listing of Proposed Subcontractors,” of the Standard Specifications, the list of subcontractors shall also set forth the percentage of work that will be done by each subcontractor listed. A sheet for listing the subcontractors is included in the Proposal.

The first sentence of the last paragraph in Section 2-1.07, "Proposal Guaranty," of the Standard Specifications is amended to read:

The bidder's bond shall conform to the bond form included in this proposal for the project “GREEN VALLEY ROAD AT TENNESSEE CREEK BRIDGE RECONSTRUCTION PROJECT”, and shall be properly filled out and executed.”

(DO NOT DETACH THE FORM).

The proposal shall be attached to and submitted with the contract documents bid package in its entirety.

The form of the bidder's bond mentioned in the last paragraph in Section 2-1.07, "Proposal Guaranty", of the Standard Specifications will be found in the Proposal. **The Bidder shall furnish one Bidder's Bond in an amount equal to at least ten percent (10%) of the total amount bid.**

In accordance with Public Contract Code Section 7106, a Noncollusion Affidavit is included in the proposal. Signing the proposal shall also constitute signature of the Noncollusion Affidavit.

The Contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of Title 49 CFR (Code of Federal Regulations) part 26 in the award and administration of US DOT assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as County deems appropriate. Each subcontract signed by the Contractor must include this assurance.

Failure of the bidder to fulfill the requirements of the special provisions for submittals required to be furnished after bid opening, including but not limited to escrowed bid documents, where applicable, may subject the bidder to a determination of the bidder's responsibility in the event it is the apparent low bidder on a future public works contracts.

2-1.02 INCLUSION OF FEDERAL FORM 1273 CONTRACT PROVISIONS

In accordance with Section 12.9 of Chapter 12 of the Caltrans Local Assistance Procedures Manual (LAPM), and Section 14 "FEDERAL REQUIREMENTS FOR FEDERAL-AID CONSTRUCTION PROJECTS" of these Contract Documents, the provisions of FHWA Form 1273 are required to be physically incorporated into each contract, subcontract and subsequent lower-tier subcontracts. The provisions may not be incorporated by reference.

The prime Contractor is responsible for compliance with the requirements by all subcontractors and lower tier subcontractors. Failure of the prime Contractor to comply with this requirement is grounds for County termination of the contract with the Contractor and debarment of the Contractor by FHWA.

2-1.03 FEDERAL LOBBYING RESTRICTIONS

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

If any funds other than Federal funds have been paid for the same purposes in connection with this Federal-aid contract, the recipient shall submit an executed certification and, if required, submit a completed disclosure form as part of the bid documents.

A certification for Federal-aid contracts regarding payment of funds to lobby Congress or a Federal agency is included in the Proposal. Standard Form - LLL, "Disclosure of Lobbying Activities," with instructions for completion of the Standard Form is also included in the Proposal. Signing the Proposal shall constitute signature of the Certification.

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

The Contractor, subcontractors and any lower-tier contractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information

contained in any disclosure form previously filed by the Contractor, subcontractors and any lower-tier contractors. An event that materially affects the accuracy of the information reported includes:

- A. A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or
- B. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or,
- C. A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

2-1.04 DISADVANTAGED BUSINESS ENTERPRISE (DBE)

This project is subject to Title 49 CFR 26.13(b):

The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

Take necessary and reasonable steps to ensure that DBEs have opportunity to participate in the contract (49 CFR 26).

To ensure there is equal participation of the DBE groups specified in 49 CFR 26.5, the County specifies a goal for Underutilized Disadvantaged Business Enterprises (UDBEs). UDBE is a firm that meets the definition of DBE and is a member of one of the following groups:

- 1. Black Americans
- 2. Native Americans
- 3. Asian-Pacific Americans
- 4. Women

References to DBEs include UDBEs, but references to UDBEs do not include all DBEs.

Make work available to UDBEs and select work parts consistent with available UDBE subcontractors and suppliers.

Meet the UDBE goal shown in the Notice to Bidders or demonstrate that you made adequate good faith efforts to meet this goal.

It is your responsibility to verify that the UDBE firm is certified as DBE at date of bid opening. For a list of DBEs certified by the California Unified Certification Program, go to:

http://www.dot.ca.gov/hq/bep/find_certified.htm

Only UDBE participation will count towards the UDBE goal. DBE participation will count towards the County's Annual Anticipated DBE Participation Level (AADPL) and the California statewide goal.

Credit for materials or supplies you purchase from UDBEs counts towards the goal in the following manner:

- 1. 100 percent counts if the materials or supplies are obtained from a UDBE manufacturer.
- 2. 60 percent counts if the materials or supplies are obtained from a UDBE regular dealer.
- 3. Only fees, commissions, and charges for assistance in the procurement and delivery of materials or supplies count if obtained from a UDBE that is neither a manufacturer or regular dealer. 49 CFR 26.55 defines "manufacturer" and "regular dealer."

You receive credit towards the goal if you employ a UDBE trucking company that performs a commercially useful function as defined in 49 CFR 26.55.

The Contractor shall also carry out applicable requirements of 49 CFR Part 18 in the award and administration of this USDOT-assisted Contract. The applicable requirements of 49 CFR Part 18 are as follows:

(a) *Contracting with small and minority firms, women's business enterprise and labor surplus area firms.*

- (1) Contractor will take all necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.
- (2) Affirmative steps shall include:
 - (i) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
 - (ii) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
 - (iii) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;
 - (iv) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises;
 - (v) Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce; and
 - (vi) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs (a)(2) (i) through (v) of this section.

Bidder will take all necessary affirmative steps to assure that minority firms, women's business enterprises and labor surplus area firms are used when possible.

UDBE Commitment Submittal

Submit UDBE information on the "Local Agency Bidder-UDBE Commitment (Construction Contracts)," Exhibit 15-G(1), form included in the Proposal. If the form is not submitted with the bid, make a copy of the form from the Proposal before submitting your bid.

If the UDBE Commitment form is not submitted with the bid, the apparent low bidder, the 2nd low bidder, and the 3rd low bidder must complete and submit the UDBE Commitment form via email or fax to Janel Gifford, El Dorado County Department of Transportation, email-Janel.Gifford@edcgov.us, Fax-(530) 295-2655 by 4:00 pm on the 4th business day after bid opening.

Other bidders do not need to submit the UDBE Commitment form unless the County requests it. If the County requests you to submit a UDBE Commitment form, submit the completed form within 4 business days of the request via email or fax to Janel Gifford, El Dorado County Department of Transportation, email-Janel.Gifford@edcgov.us, Fax-(530) 295-2655.

Submit written confirmation from each UDBE stating that it is participating in the contract. Include confirmation with the UDBE Commitment form. A copy of a UDBE's quote will serve as written confirmation that the UDBE is participating in the contract.

If you do not submit the UDBE Commitment form with the UDBE quotes within the specified time, the County may find your bid nonresponsive.

Good Faith Efforts Submittal

If you have not met the UDBE goal, complete and submit the "UDBE Information - Good Faith Efforts," Exhibit 15-H, form with the bid showing that you made adequate good faith efforts to meet the goal. Only good faith efforts directed towards obtaining participation by UDBEs will be considered. If good faith efforts documentation is not submitted with the bid, make a copy of Exhibit 15-H before submitting your bid. If good faith efforts documentation is not submitted with the bid, it must be submitted via email or fax to Janel Gifford, El Dorado County Department of Transportation, email-Janel.Gifford@edcgov.us, Fax-(530) 295-2655 by 4:00 pm on the 4th business day after bid opening.

If your UDBE Commitment form shows that you have met the UDBE goal or if you are required to submit the UDBE Commitment form, in order to protect your eligibility for award of the contract in the event the County finds that the UDBE goal has not been met, you must also submit good faith efforts documentation within the specified time.

Good faith efforts documentation must include the following information and supporting documents, as necessary:

1. Items of work you have made available to UDBE firms. Identify those items of work you might otherwise perform with your own forces and those items that have been broken down into economically feasible units to facilitate UDBE participation. For each item listed, show the dollar value and percentage of the total contract. It is your responsibility to demonstrate that sufficient work to meet the goal was made available to UDBE firms.
2. Names of certified UDBEs and dates on which they were solicited to bid on the project. Include the items of work offered. Describe the methods used for following up initial solicitations to determine with certainty if the UDBEs were interested, and the dates of the follow-up. Attach supporting documents such as copies of letters, memos, facsimiles sent, telephone logs, telephone billing statements, and other evidence of solicitation. You are reminded to solicit certified UDBEs through all reasonable and available means and provide sufficient time to allow UDBEs to respond.
3. Name of selected firm and its status as a UDBE for each item of work made available. Include name, address, and telephone number of each UDBE that provided a quote and their price quote. If the firm selected for the item is not a UDBE, provide the reasons for the selection.
4. Name and date of each publication in which you requested UDBE participation for the project. Attach copies of the published advertisements.
5. Names of agencies and dates on which they were contacted to provide assistance in contacting, recruiting, and using UDBE firms. If the agencies were contacted in writing, provide copies of supporting documents.
6. List of efforts made to provide interested UDBEs with adequate information about the plans, specifications, and requirements of the contract to assist them in responding to a solicitation. If you have provided information, identify the name of the UDBE assisted, the nature of the information provided, and date of contact. Provide copies of supporting documents, as appropriate.
7. List of efforts made to assist interested UDBEs in obtaining bonding, lines of credit, insurance, necessary equipment, supplies, and materials, excluding supplies and equipment that the UDBE subcontractor purchases or leases from the prime contractor or its affiliate. If such assistance is provided by you, identify the name of the UDBE assisted, nature of the assistance offered, and date. Provide copies of supporting documents, as appropriate.
8. Any additional data to support demonstration of good faith efforts.

In accordance with 49 CFR 26.53(d) if the County determines that the apparent successful bidder failed to meet the Good Faith Effort requirements, the County will provide the apparent successful low bidder an opportunity for administrative reconsideration before awarding the contract. The County will provide the apparent successful low bidder an opportunity to submit written documentation or argument and meet in person with the reconsideration official concerning the issue of whether it met the goal or made adequate good faith efforts to do so. The reconsideration official is someone who did not participate in the original determination that the goal or good faith effort was not met.

2-1.05 REQUIRED LISTING OF PROPOSED SUBCONTRACTORS

Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications is amended to read:

2-1.054 Required Listing of Proposed Subcontractors; Each Proposal shall have listed therein the name, contractor's license number and address of each subcontractor to whom the bidder proposes to subcontract portions of the work in an amount in excess of 0.5 % of the total bid or \$10,000, whichever is greater, in accordance with the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code. The Bidder shall also describe in the Subcontractor Listing the work to be performed by each subcontractor listed. The work to be performed by the subcontractor shall be shown by listing the bid item number, bid item description, and portion of the work to be performed by the subcontractor in the form of a percentage calculated by dividing the work to be performed by the subcontractor by the respective bid item amount(s) (not by the total bid price). The percentage of each bid item subcontracted may be submitted with the Bidder's bid or sent via email or fax to Janel Gifford, El Dorado County Department of Transportation, email-Janel.Gifford@edcgov.us, Fax-(530) 295-2655 by 4:00 p.m. on the first business day after the bid opening. The email or fax shall contain the name of each subcontractor submitted with the Bidder's bid along with the bid item number, bid item description, and the percentage of each bid item subcontracted, as described above. At the time the contract is awarded, all listed subcontractors shall be properly licensed to perform their designated portion of the work. The bidder's attention is directed to other provisions of the Act related to the imposition of penalties for failure to observe its provisions by using unauthorized subcontractors or by making unauthorized substitutions.

Forms for listing the subcontractors who will work on this Project are included in the Proposal section of these Contract Documents.

2-1.06 COMPLIANCE WITH FEDERAL, STATE AND LOCAL AGENCY REQUIREMENTS

County is relying on federal assistance or grants as well as on state funds for all or a portion of the funding for the Work to be provided under this Contract. As a requirement of County's use of federal and state funds, County is required to comply with certain federal and state contracting requirements and to extend those requirements to its third party contracts. Contractor shall comply and shall require its subcontractors to comply with all applicable provisions of federal and state regulations, including those required by Caltrans and Federal Highway Administration (FHWA) grant funding requirements, regulations, and related executive orders regarding the use, expenditure, control, reporting, allowable costs and management of such funds as well as these requirements detailed in 49 CFR Part 18, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments. Contractor shall further comply with all applicable provisions of the Caltrans Local Assistance Procedures Manual and the Local Assistance Program Guidelines, all Title 23 Federal requirements and all applicable state and federal laws, regulations and policy; procedural or instructional memoranda. Failure of Contractor to comply with any federal or state provision may be the basis for withholding payments to Contractor and for such other remedies as may be appropriate including termination of this Contract. Contractor shall also comply with any flow-down or third-party contracting provisions which may be required under the federal and state regulations and which may apply to Contractor's subcontracts, if any, associated with this Contract. Contractor shall ensure that all subcontractors submit certifications regarding federal lobbying activities as required by Section 1352, Title 31, United State Code and that all such certifications are made a part of any subcontracts entered into as a result of this Contract.

2-1.07 COST PRINCIPLES

The Federal Acquisition Regulations in Title 48, CFR, Part 31 et seq. as applicable, are the governing factors regarding allowable elements of cost for the Work to be performed under this Contract.

- A. Contractor and its subcontractors shall comply with Office of Management and Budget Circular A-87, Cost Principles for State, Local And Indian Tribal Governments; with Federal administrative procedures pursuant to 49 CFR, Part 18, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and

Local Governments; and with Contract Cost Principles, 48 CFR, Federal Acquisition Regulations System, Chapter 1, Parts 31 et seq., insofar as those regulations may apply to Contractor and its subcontractors. This provision shall apply to every sub-recipient receiving funds as a Contractor or subcontractor under this Contract.

- B. Any expenditures for costs for which Contractor has received payment or credit that are determined by subsequent audit to be unallowable under Office of Management and Budget Circular A-87, 48 CFR, Parts 31 et seq. or 49 CFR, Part 18 are subject to repayment by Contractor to County.
- C. Travel and per diem reimbursements, if applicable, and third-party contract reimbursements to subcontractors will be allowable as project costs only after those costs are incurred and paid for by Contractor.
- D. Notwithstanding any other provision of the Contract Documents to the contrary, payments to Contractor for mileage, travel or subsistence expenses, if applicable, for Contractor's staff or subcontractors claimed for reimbursement shall not exceed the lesser of (1) the rates to be paid to County employees under the current Board of Supervisors Travel Policy in effect at the time the expenses are incurred; or (2) the rates authorized to be paid to rank and file State employees under current State Department of Personnel Administration (DPA) rules. If the rates claimed are in excess of those authorized DPA rates, then Contractor is responsible for the cost difference, and any overpayments inadvertently paid by County shall be reimbursed to County by Contractor on demand within thirty (30) days of such demand.
- E. Contractor and its subcontractors shall establish and maintain accounting systems and records that properly accumulate and segregate funds received under this Agreement by line item. The accounting systems of Contractor and all subcontractors shall conform to Generally Accepted Accounting Principles (GAAP), shall enable the determination of incurred costs at interim points of completion, and shall provide support for reimbursement of payment vouchers or invoices.

2-1.08 BID PROTEST PROCEDURE

The protest procedure is intended to handle and resolve disputes related to the bid award for this project pursuant to Title 49 Code of Federal Regulations Part 18 Section 18.36 (b) (12)(i)-(ii) and County of El Dorado policies and procedures. A protestor must exhaust all administrative remedies with the County of El Dorado before pursuing a protest with a Federal Agency. Reviews of protests by the Federal agency will be limited to:

- (i.) Violations of Federal law or regulations and the standards of 49 CFR Part 18 Section 18.36 (b) (12)(i)-(ii). Violations of State of California or local law will be under the jurisdiction of the State of California or the County of El Dorado; and
- (ii.) Violation of the County of El Dorado's protest procedures for failure to review a complaint or protest. Protests received by the Federal agency other than those specified above will be referred to the County of El Dorado.

The protest procedure is an extension of the formal bid process and allows those who wish to protest the recommendation of an award after bid the opportunity to be heard.

Policy: Upon completion of the bid evaluation, the Department of Transportation shall notify all bidders of the recommendation of award, the basis therefore, and the date and time on which the recommendation for award will be considered and acted upon by the Board of Supervisors. All bidders may attend the Board of Supervisors meeting at the time the agenda item is considered, address the Board of Supervisors, and be heard.

Procedure: If a bidder wishes to protest the award, the procedure shall be as follows:

1. The Department of Transportation will review the bids received in a timely fashion under the terms and conditions of the Notice to Bidders, and notify the bidders in writing, at the address designated in the bid, of its recommendation including for award or rejection of bids ("All Bidders Letter").
2. Within five (5) working days from the date of the "All Bidders Letter," the bidder protesting the recommendation for award shall submit a letter of protest to the County of El Dorado, Department of Transportation, Attention Janel Gifford, 2441 Headington Road, Placerville, CA 95667, and state in detail the basis and reasons for the protest. The bidder must

provide facts to support the protest, including any evidence it wishes to be considered, together with the law, rule, regulation, or criteria on which the protest is based.

3. If the Department of Transportation finds the protest to be valid, it may modify its award recommendations and notify all bidders of that decision. If the Department of Transportation does not agree with the protest, or otherwise fails to resolve the protest, the Department of Transportation will notify the bid protestor and all interested parties of its decision and the date and time that the recommendation for award will be agendized for the Board of Supervisors' consideration and action. The Department of Transportation shall also include in its report to the Board of Supervisors the details of the bid protest.

4. The bidder may attend the Board of Supervisors meeting at which the recommendation and bid protest will be considered. The Board of Supervisors will take comment from the bidder, staff, and members of the public who wish to speak on the item. In the event that the bidder is not in attendance at that time, the bid protest may be dismissed by the Board of Supervisors without further consideration of the merits; and

In its discretion, the County of El Dorado may accept or reject any bids. The decision of the Board of Supervisors shall be final in accepting or rejecting the bid protest, awarding the bid, or rejecting any or all bids.

SECTION 3. AWARD AND EXECUTION OF CONTRACT

3-1.01 GENERAL

The bidder's attention is directed to the provisions in Section 3, "Award and Execution of Contract," of the Standard Specifications and these special provisions for the requirements and conditions concerning award and execution of contract.

3-1.02 AWARD OF CONTRACT

Section 3-1.01, "Award of Contract," of the Standard Specifications is amended to read:

3-1.01 Award of Contract; The right is reserved to reject any and all Proposals. The award of the Contract, if it be awarded, will be to the lowest, responsive, responsible bidder whose Proposal complies with all the requirements prescribed. Such award, if made, will be made within sixty (60) days after the opening of the Proposals. This period will be subject to extension for such further period as may be agreed upon in writing between the Department and the bidder concerned.

All bids will be compared on the basis of the Proposal Pay Items and Bid Price Schedule of the quantities of work to be done.

The lowest, responsive, responsible bidder shall be the bidder submitting the lowest additive total of all the bid items. In the event of a discrepancy between the unit price bid and the extended unit total as stated on the Proposal, the amount bid for the unit price shall control and shall be utilized in calculating the additive total of the bid items for purposes of award, including revisions by Addenda, and as specified in the Proposal instructions.

A "LOCAL AGENCY BIDDER - DBE INFORMATION (Construction Contracts) Exhibit 15 -G(2)" form will be included in the contract documents to be executed by the successful bidder. The purpose of the form is to collect data required under 49 CFR 26. Even if no DBE participation will be reported, the successful bidder must execute and return the form. Information required on this form is in addition to the Local Agency Bidder - UDBE Commitment (Construction Contracts) Exhibit 15-G (1) form included in the Proposal section. The successful bidder's "LOCAL AGENCY BIDDER - DBE INFORMATION" (Construction Contracts) Exhibit 15 -G(2)" form should include the names, addresses and phone numbers of DBE firms that will participate, with a complete description of work or supplies to be provided by each, and the dollar value of each DBE transaction. When 100 percent of a contract item of work is not to be performed or furnished by a DBE, a description of the exact portion of that work to be performed or furnished by that DBE should be included in the DBE information, including the planned location of that work. A successful bidder

certified as a DBE shall describe the work it has committed to performing with its own forces as well as any other work that it has committed to be performed by DBE subcontractors, suppliers and trucking companies.

The successful bidder shall provide written confirmation from each DBE that the DBE is participating in the contract. A copy of a DBE's quote will serve as written confirmation that the DBE is participating in the contract. If a DBE is participating as a joint venture partner, the successful bidder shall submit a copy of the joint venture agreement.

The "LOCAL AGENCY BIDDER - DBE INFORMATION (Construction Contracts) Exhibit 15 -G(2)" form shall be completed and returned to the County by the successful bidder with the executed contract, contract bonds and other required contract documents.

3-1.03 EXECUTION OF CONTRACT

Attention is directed to the "Notice to Bidders" and "Proposal" for this Contract. Barring some unforeseen irregularity, Notice of Award will be sent to the lowest responsive responsible bidder after approval by the El Dorado County Board of Supervisors.

The successful bidder shall return the signed Contract, the Contract bonds, the completed "LOCAL AGENCY - DBE INFORMATION (Construction Contracts) Exhibit 15 - G(2)" form, the escrow bid documents with lockable container, a California Form 590-Withholding Exemption Certificate, a Federal Form W-9-Request for Taxpayer Identification Number and Certification, and certificates of insurance to the Office of the Department of Transportation within ten (10) days, not including Saturdays, Sundays and legal holidays, of the date of the Notice of Award of Contract letter. Priority delivery or mail of these documents should be to attention Janel Gifford at the El Dorado County Department of Transportation, 2441 Headington Road, Placerville CA 95667, Janel.Gifford@edcgov.us.

The failure of the successful bidder to furnish any bond required of it by law or by this Agreement, or the failure to execute the Contract, or the failure to provide the required insurance documents within the time fixed for the execution of the Contract and return of the bonds and insurance constitutes a failure to execute and return the Contract as required herein. Upon such failure or refusal to return the executed Agreement, or to provide the bonds or insurance documents required herein, the bidder's security shall be forfeited to the County.

3-1.04 ESCROW BID DOCUMENTS

Scope

The successful bidder shall submit to Janel Gifford at the El Dorado County Department of Transportation, 2441 Headington Road, Placerville CA 95667, Janel.Gifford@edcgov.us, within ten (10) days, not including Saturdays, Sundays, and legal holidays, of the date of the Notice of Award of the Contract letter, one sealed copy of all documentary information generated in preparation of bid prices for this project. This material is hereinafter referred to as Escrow Bid Documents (EBDs). The EBDs of the successful bidder will be held in escrow for the duration of the contract.

The successful bidder agrees, as a condition of execution of the Contract, that the EBDs constitute the only complete documentary information used in preparation of his bid. No other bid preparation information shall be considered in resolving disputes.

Nothing in the EBDs shall change or modify the terms or conditions of the Contract.

Ownership

The EBDs are and shall always remain the property of the Contractor subject only to joint review by County and the Contractor, except as provided for herein.

County, for purposes of this section, will treat EBDs, as defined herein, as trade secrets. This acknowledgment is based on the County's express understanding that the information contained in the EBDs is not known outside the Contractor's business, is known only to a limited extent and only by a limited number of employees of the Contractor, is safeguarded while in the Contractor's possession, and is extremely valuable to competitors by virtue of it reflecting the Contractor's contemplated techniques of construction.

County acknowledges that EBDs and the information contained therein are made available to County only because such action is an express prerequisite to execution of the Contract by the County. County acknowledges that the EBDs include a compilation of information used in the Contractor's business, intended to give the Contractor an opportunity to obtain an advantage over competitors who do not know of or use the contents of the documentation. County agrees to safeguard the EBDs and all information contained therein to the fullest extent permitted by law.

Purpose

EBDs will be used to assist in the negotiation of price adjustments and variations and in the settlement of disputes, claims and other controversies. They will not be used for evaluation of the Contractor's anticipated methods of construction or to assess the Contractor's qualifications for performing the Work.

Format and Contents

Bidders may submit EBDs in their usual cost estimating format. It is not intended that extra work is required in preparing the bid but to ensure that the EBDs will be adequate to enable complete and proper understanding and proper interpretation for their intended use. The EBDs shall be in the English language only.

The EBDs shall clearly itemize the estimated costs of performing the work of each item contained in the Proposal Pay Items and Bid Schedule. Items should be separated into sub-items as required to present a complete and detailed cost estimate and allow a detailed cost review. The EBDs shall include all quantity take-offs, crews, assumed overtime, equipment, calculations of rates of production and progress, acceleration costs, copies of quotations from Subcontractors and suppliers, and memoranda, narratives, consultants reports, add/deduct sheets, and all other information used by the Contractor to arrive at the prices contained in the bid. Estimated costs shall be broken down into the Contractor's usual estimate categories such as direct labor, repair labor, equipment operation, equipment ownership, expendable materials, permanent materials, and subcontract costs as appropriate. Plant and equipment and indirect costs should be detailed in the Contractor's usual format. The Contractor's allocation of plant and equipment, indirect costs, contingencies, mark-up, and other items to each bid item shall be clearly indicated.

The EBDs shall clearly show in calculations, text, or both, the relationship between baseline indications presented in the Contract Documents and assumptions that form the basis for the Contractor's means, methods, equipment selection, rates of production, and costs.

All costs shall be identified. For bid items where the extended amount is less than \$10,000 estimated unit costs are acceptable without a detailed cost estimate, providing that labor, equipment, materials and subcontracts, as applicable, are included and provided that indirect costs, contingencies, and mark-up, as applicable, are allocated.

Bid Documents provided by County should not be included in the EBDs unless needed to comply with the above requirements.

Submittal

The EBDs shall be submitted by the successful bidder in a sealed lockable container within ten (10) days, not including Saturdays, Sundays, and legal holidays, of the date of the Notice of Award of the Contract letter. The container shall be clearly marked on the outside with the Bidder's name, date of submittal, project name, Contract No., and the words "Escrow Bid Documents".

The EBDs shall be accompanied by the "Bid Documentation Certification", signed by an individual authorized by the bidder to execute the bid, stating that the material in the Escrow Bid Documentation constitutes all the documentary information used in the preparation of the bid and that he or she has personally examined the contents of the EBDs container and has found that the documents in the container are complete.

"Escrow Bid Document Certification"

THE UNDERSIGNED HEREBY CERTIFIES THAT THE BID DOCUMENTATION CONTAINED HEREIN CONSTITUTES ALL THE INFORMATION USED IN PREPARATION OF THE BID AND THAT I HAVE PERSONALLY EXAMINED THESE CONTENTS AND HAVE FOUND THAT THIS BID DOCUMENTATION IS COMPLETE.

SIGNATURE:

NAME:
(Print)

TITLE:

FIRM:

DATE:

Prior to execution of the Contract by the County, the EBDs of the successful bidder will be examined, organized and inventoried by representatives of County, together with members of the Contractor's staff who are knowledgeable in how the bid was prepared. This examination is to ensure that the EBDs are authentic, legible, and complete. It will not include review of and will not constitute approval of proposed construction methods, estimating assumptions, or interpretations of the Contract Documents. Examination will not alter any condition(s) or term(s) of the Contract.

If all documentation required in the "Format and Contents" has not been included in the original submittal, additional documentation shall be submitted, at County's discretion, prior to execution of the Contract by the County. The detailed breakdown of estimated costs shall be reconciled and revised, if appropriate, by agreement between the Contractor and County before execution of the Contract by the County.

Failure of the successful bidder to furnish the EBDs in accordance with this special provision constitutes a failure to execute and return the Contract as required. Upon such failure to submit the EBDs as required herein, the bidder's security will be forfeited to the County. The County will then recommend that the Board of Supervisors award the Contract to the second lowest bidder, who shall comply with the EBDs provisions herein.

If the bidder's proposal is based on subcontracting any part of the Work, each Subcontractor whose total subcontract price exceeds five percent of the total contract price proposed by the bidder, shall provide separate EBDs to be included with those of the bidder. These documents will be opened and examined in the same manner and at the same time as the examination described above for the apparent successful bidder.

If the Contractor wishes to subcontract any portion of the Work after award, County retains the right to require the Contractor to submit EBDs from the Subcontractor for subcontracts that exceed 5% of the total contract amount before the subcontract is approved.

Storage

The EBDs shall be stored at the Department of Transportation's Construction Unit at 2441 Headington Road, Placerville, CA. in the lockable container supplied by the Contractor. The Contractor shall provide the lockable container and the Contractor shall maintain possession of the key.

Examination

The EBDs shall be examined by both County and the Contractor, at any time deemed necessary by either County or the Contractor, to assist in the negotiation of price adjustments and change orders, or the settlement of disputes.

Examination of the EBDs is subject to the following conditions:

- a. As trade secrets, the EBDs are proprietary and confidential as described above.
- b. County and the Contractor shall each designate, in writing to the other party a minimum of ten calendar days prior to examination, representatives who are authorized to examine the EBDs. No other person shall have access to the EBDs.
- c. Access to the EBDs will take place only in the presence of duly designated representatives of both County and the Contractor.

Final Disposition

The EBDs and the lockable container will be returned to the Contractor at such time as the Contract has been completed and final settlement has been achieved.

Full compensation for preparing and submitting EBDs, furnishing the lockable container, for preparing and submitting EBDs for any subcontractor after award, and for examining EBDs shall be considered as included in the contract price for various items of roadway and bridge work involved and no additional compensation will be allowed therefor.

SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES

4-1.01 GENERAL

Attention is directed to the provisions in Section 8-1.06, "Time of Completion," and in Section 8-1.07, "Liquidated Damages," of the Standard Specifications and these special provisions.

Section 8-1.03, "Beginning of Work" of the Standard Specifications shall not apply and shall be replaced with the following:

The contract working days shall begin on the date stated in the Notice to Proceed issued by the Department of Transportation.

The work shall be diligently prosecuted to completion before the expiration of **TWO HUNDRED SEVENTY FIVE (275) WORKING DAYS.**

The Contractor shall pay to the County of El Dorado the sum of **ONE THOUSAND DOLLARS (\$1,000)** per day, for each and every calendar day's delay in finishing the work in excess of **TWO HUNDRED SEVENTY FIVE (275) WORKING DAYS.**

For Stage 2 work requiring the closure of Green Valley Road and North Shingle Road, the Contractor shall be allowed a maximum of four (4) consecutive calendar days, from 9:00 p.m. Thursday to 5:00 a.m. Tuesday, as described in "Maintaining Traffic" of these special provisions, to complete the work (less the final lift of AC). In the event the Contractor fails to open Green Valley Road and North Shingle Road after the above prescribed four (4) calendar days, the Contractor shall pay to the County of El Dorado the sum of eight thousand eight hundred fifty dollars (\$8,850) per calendar day for each and every calendar day's delay. For work on Peaceful Garden Way, the Contractor shall have five (5) consecutive calendar days to close Peaceful Garden Way to complete the work (less the final lift of AC). In the event the Contractor fails to open Peaceful Garden Way to two lane traffic in five (5) consecutive calendar days, the Contractor shall pay to the County of El Dorado the sum of one thousand dollars (\$1,000) per calendar day for each and every calendar day's delay.

TEMPORARY SUSPENSION OF WORK

If the environmental permit regulations (stream zone work restrictions between October 15 and April 15), 20-inch waterline tie-in restrictions, or inclement weather prohibit the Contractor from performing the controlling operation, the Engineer will temporarily suspend the Contractor's work. In addition to the reasons for which the Engineer may determine a day to be a non-working day as listed in Section 8-1.06 of the Standard Specifications, the Engineer will issue a non-working day for any day that a temporary suspension of work impacts the Contractor's controlling operation or operations. Nothing herein shall prevent the Contractor from performing during this period any item of work that is not within the impacted area.

During the temporary suspension, winterization costs or costs associated with water pollution control within the County's project area shall be made in accordance with "Water Pollution Control" elsewhere in these Special Provisions. Any other contract work required to be performed within the County's project area during the temporary suspension (including, but not limited to items such as traffic control) shall be paid for via their respective contract items.

Since the Contractor is being made aware of this temporary suspension of work prior to bid submittal, full compensation for all direct and indirect costs (including but not limited to home office overhead, field office overhead, and mobilization or remobilization) related to this temporary suspension of work shall be considered as included in the various items of roadway and bridge work and no additional payment will be made therefor. Except as otherwise

provided herein, the Contractor shall at all times remain responsible for the obligations set forth in Section 7 of the Standard Specifications, "Legal Relations and Responsibility".

4-1.02 CONSTRUCTION SCHEDULE

Normal working hours shall be from 7:00 a.m. to 7:00 p.m. Monday through Friday. Working hours between 8:00 a.m. to 7:00 p.m. on Saturdays and Sundays will be allowed upon approval of the Engineer. Work will be prohibited the day before legal holidays after 7:00 p.m., and on legal holidays (all hours). At the discretion of the Engineer, seasonal adjustments in the hours of the normal working day may be made.

The Engineer may approve, at his sole discretion, nighttime work, as requested by the Contractor when it is determined that the work must be performed at night for reasons of public safety, traffic congestion, public convenience or worker safety. The Contractor may close the project area to vehicular traffic from 9:00 p.m. Thursday to 5:00 a.m. Tuesday, during a single occasion, in order to complete Stage 2 work. Since all 104 hours may be needed to complete the work in Stage 2, Contractor may work all hours during this period. Attention is directed to "Maintaining Traffic," of these special provisions regarding this detour period. The Contractor shall conduct nighttime operations in accordance with the section entitled "Sound Control Requirements" and the section entitled "Nighttime Lighting Requirements" elsewhere in these special provisions.

Attention is directed to section entitled "Closure Requirements and Conditions" of these special provisions regarding allowable times and frequencies of lane closures.

The contract time will be extended one (1) working day for each working day (Monday through Friday, excluding legal holidays) that the Contractor's operations are suspended due to weather condition. No time extensions will be allowed for weekends or holidays where the Contractor's operations are suspended due to weather condition, unless the Contractor's operations on the working day before and after the weekend or holiday are suspended due to weather condition. The Engineer has sole authority for determining time extensions pursuant to this section.

4-1.03 PRE-CONSTRUCTION CONFERENCE AND WEEKLY MEETINGS

A pre-construction conference will be scheduled by the Engineer between the Engineer and the Contractor or its representative after the project is awarded and prior to the issuance of the Notice to Proceed. The conference will be held at the Construction Office, 2441 Headington Road, Placerville to discuss the work each DBE subcontractor will perform and important aspects of the project and all essential matters pertaining to the prosecution and the satisfactory completion of the project as required, and the Contractor shall bring all required schedules and documents to the meeting.

Before work can begin on a subcontract, the Department will require the Contractor to submit a completed "Subcontracting Request", Exhibit 16-B of the Caltrans Local Assistance Procedures Manual (LAPM) or equivalent. When the Engineer receives the completed form it will be checked for agreement of the first tier subcontractors and DBE's. The Engineer will not approve the request when it identifies someone other than the DBE or first tier subcontractor listed in the previously completed "LOCAL AGENCY BIDDER – DBE INFORMATION (Construction Contracts) Exhibit 15-G(2)" form. The "Subcontracting Request" will not be approved until any discrepancies are resolved. If an issue cannot be resolved at that time, or there is some other concern, the Engineer will require the Contractor to eliminate the subcontractor in question before signing the subcontracting request. A change in the DBE or first tier subcontractor may be addressed during a substitution process at a later date.

Suppliers, vendors, or manufacturers listed on the "LOCAL AGENCY BIDDER – DBE INFORMATION (Construction Contracts) Exhibit 15-G(2)" form will be compared to those listed in the completed Exhibit 16-I "Notice of Materials to be Used", of the LAPM or equivalent. Differences must be resolved by either making corrections or requesting a substitution.

Substitutions will be subject to the Subletting and Subcontracting Fair Practices Act (FPA). The Department will require contractors to adhere to the provisions within Subletting and Subcontracting Fair Practices Act (State Law) Sections 4100-4114. FPA requires the Contractor to list all subcontractors in excess of one half of one percent (0.5%) of the Contractor's total bid or \$10,000, whichever is greater. The statute is designed to prevent bid shopping by

contractors. The FPA explains that a contractor may not substitute a subcontractor listed in the original bid except with the approval of the awarding authority.

The Engineer will give the Contractor a blank Exhibit 17-F, "Final Report – Utilization of Disadvantaged Business Enterprises (DBE), First –Tier Subcontractors," from the Caltrans LAPM. This form must be completed and returned to the County with the Acceptance Statement which accompanies the Proposed Final Pay Estimate.

4-1.04 PROSECUTION AND PROGRESS

Attention is directed to the provisions of Section 8 of the Standard Specifications.

The Contractor shall notify the Engineer within five (5) working days of any occurrence, which in the Contractor's opinion, entitles it to an extension of time for completion. Such notice shall be in writing. The Engineer shall acknowledge, in writing, receipt of any such claim by the Contractor within five (5) working days of its receipt.

SECTION 5. GENERAL

SECTION 5-1. MISCELLANEOUS

5-1.01 LINES AND GRADES

Attention is directed to Section 5-1.07, "Lines and Grades," of the Standard Specifications. Stakes or marks will be set by the Engineer in conformance with the requirements in Chapter 12, "Construction Surveys," of the Caltrans Surveys Manual.

5-1.02 CONTRACT BONDS

Attention is directed to Section 3-1.02, "Contract Bonds," of the Standard Specifications and these special provisions.

The performance bond shall be in a sum not less than one hundred percent (100%) of the total amount payable by the terms of the contract.

The payment bond shall be in a sum not less than one hundred percent (100%) of the total amount payable by the terms of the contract.

5-1.03 GUARANTEE

GENERAL

The Contractor shall guarantee the work is in accordance with contract requirements and remains free from substantial defects in materials and workmanship for a period of one year after contract acceptance. For certain portions of the work where the Director relieves the Contractor of responsibility in accordance with Section 7-1.15, "Relief from Maintenance and Responsibility," of the Standard Specifications, the guarantee period starts on the relief date and ends one year therefrom.

Substantial defects in materials and workmanship means defective work objectively manifested by damaged, displaced, or missing parts or components and workmanship resulting in improper function of materials, components, equipment, or systems, as installed or manufactured by the Contractor, subcontractor, supplier, or manufacturer.

During the guarantee period, the Contractor shall repair or replace contract work and associated work which is not in accordance with contract requirements or has substantial defects in materials and workmanship. The Contractor shall perform the corrective work with no expense to the Department other than State-provided field inspection services.

The guarantee of work excludes damage or displacement that is outside the control of the Contractor and caused by normal wear and tear, improper operation, insufficient maintenance, abuse, unauthorized modification, or natural disaster as described in Section 7-1.165, "Damage by Storm, Flood, Tsunami or Earthquake," of the Standard Specifications.

The Contractor shall have the same insurance coverage during corrective work operations as prior to contract acceptance, in accordance Section 7, "Contractor's Insurance" of these special provisions.

The contract bonds furnished in accordance with Section 3-1.02, "Contract Bonds," of the Standard Specifications must remain in full force and effect during the guarantee period and until all corrective work is complete.

In the case of conflict between this guarantee provision and any warranty provision included in the contract, the warranty provision shall govern for the specific construction product or feature covered.

CORRECTIVE WORK

During the guarantee period, the Department will monitor performance of the highway facilities completed by the Contractor and will perform a thorough review of the contract work at least 60 days before the expiration of the one-year guarantee.

If the Engineer discovers contract work not in compliance with contract requirements or that has substantial defects in materials and workmanship, at any time during the guarantee period, a list of items that require corrective work will be developed and forwarded to the Contractor. Within 15 days of receipt of a list, the Contractor shall submit to the Engineer a detailed plan for performing corrective work. The work plan shall include a start to finish schedule. It shall include a list of labor, equipment, materials, and any special services intended to be used. It shall clearly show related work including traffic control, temporary delineation, and permanent delineation.

The Contractor shall start the corrective and related work within 15 days of receiving notice from the Engineer that the Contractor's work plan is approved. The corrective work shall be diligently prosecuted and completed within the time allotted in the approved work plan.

If the Engineer determines that corrective work, covered by the guarantee, is urgently needed to prevent injury or property damage, the Engineer will give the Contractor a request to start emergency repair work and a list of items that require repair work. The Contractor shall mobilize within 24 hours and diligently perform emergency repair work on the damaged highway facilities. The Contractor shall submit a work plan within 5 days of starting emergency repair work.

If the Contractor fails to commence and execute, with due diligence, corrective work and related work required under the guarantee in the time allotted, the Engineer may proceed to have the work performed by State forces or other forces at the Contractor's expense. Upon demand, the Contractor shall pay all costs incurred by the Department for work performed by State forces or other forces including labor, equipment, material, and special services.

PAYMENT

Full compensation for performing corrective work; and related work such as traffic control, temporary delineation, and permanent delineation, and to maintain insurance coverage and bonds, shall be considered as included in the contract prices paid for the various items of roadway and bridge work and no separate payment will be made therefor.

5-1.04 COST REDUCTION INCENTIVE

Attention is directed to Section 5-1.14, "Cost Reduction Incentive," of the Standard Specifications.

Prior to preparing a written cost reduction proposal, the Contractor shall request a meeting with the Engineer to discuss the proposal in concept. Items of discussion will also include permit issues, impact on other projects, impact on the project schedule, peer reviews, overall merit of the proposal, and review times required by the Department and other agencies.

If a cost reduction proposal submitted by the Contractor, and subsequently approved by the Engineer, provides for a reduction in contract time, fifty percent (50%) of that contract time reduction shall be credited to the County by reducing the contract working days, not including plant establishment. Attention is directed to "Beginning of Work, Time of Completion and Liquidated Damages" of these special provisions regarding the working days.

If a cost reduction proposal submitted by the Contractor, and subsequently approved by the Engineer, provides for a reduction in traffic congestion or avoids traffic congestion during construction, sixty percent (60%) of the estimated net

savings in construction costs attributable to the cost reduction proposal will be paid to the Contractor. In addition to the requirements in Section 5-1.14, "Cost Reduction Incentive," of the Standard Specifications, the Contractor shall provide detailed comparisons of the traffic handling between the existing contract and the proposed change, and estimates of the traffic volumes and congestion.

5-1.05 LABOR NONDISCRIMINATION

Attention is directed to the following Notice that is required by Chapter 5 of Division 4 of Title 2, California Code of Regulations.

NOTICE OF REQUIREMENT FOR NONDISCRIMINATION PROGRAM (GOVERNMENT CODE SECTION 12990)

Attention is further directed to the "Nondiscrimination Clause", set forth in Section 7-1.01A(4), "Labor Nondiscrimination," of the Standard Specifications, which is applicable to all nonexempt State contracts and subcontracts, and to the "Standard California Nondiscrimination Construction Contract Specifications" set forth therein. The specifications are applicable to all nonexempt State construction contracts and subcontracts of \$5,000 or more.

Attention is also directed to the draft Agreement contained in these Contract Documents for additional nondiscrimination and fair employment practices provisions that will apply to this federal-aid contract.

5-1.06 PREVAILING WAGE REQUIREMENTS

In accordance with the provisions of California Labor Code Sections 1770 et seq., including but not limited to Sections 1773, 1773.1, 1773.2, 1773.6, and 1773.7, the general prevailing rate of wages in the county in which the Work is to be done has been determined by the Director of the California Department of Industrial Relations. These wage rates appear in the California Department of Transportation publication entitled General Prevailing Wage Rates. Interested parties can obtain the current wage information by submitting their requests to the Department of Industrial Relations, Division of Labor Statistics and Research, PO Box 420603, San Francisco CA 94142-0603, Telephone (415) 703-4708 or by referring to the website at <http://www.dir.ca.gov/dlsr/PWD>. The rates at the time of the bid advertisement date of a project will remain in effect for the life of the project in accordance with the California Code of Regulations, as modified and effective January 27, 1997.

Copies of the general prevailing rate of wages in the county in which the Work is to be done are also on file at the Department of Transportation's principal office, and are available upon request, and in case of projects involving federal funds, federal wage requirements as predetermined by the United States Secretary of Labor have been included in the Contract Documents. Addenda to modify the Federal minimum wage rates, if necessary, will be issued as described in the Project Administration section of this Notice to Bidders.

In accordance with the provisions of Labor Code 1810, eight (8) hours of labor shall constitute a legal day's work upon all work done hereunder, and Contractor and any subcontractor employed under this Contract shall conform to and be bound by the provisions of Labor Code Sections 1810 through 1815.

In the case of federally funded projects, where federal and state prevailing wage requirements apply, compliance with both is required. This project is funded in whole or part by federal funds. Contractor's attention is directed to Section 14 of the Special Provisions and the requirements of, and compliance with the Copeland Act (18 U.S.C. 874 and 29 CFR Part 3), the Davis-Bacon Act (40 U.S.C. 276a to 276a-7 and 29 CFR Part 5), and the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330 and 29 CFR Part 5).

If there is a difference between the minimum wage rates predetermined by the Secretary of Labor and the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for similar classifications of labor, Contractor and subcontractors shall pay not less than the higher wage rate. The Department will not accept lower State wage rates not specifically included in the Federal minimum wage determinations. This includes "helper" (or other classifications based on hours of experience) or any other classification not appearing in the Federal wage determinations. Where Federal wage determinations do not contain the State wage rate determination otherwise

available for use by Contractor and subcontractors, Contractor and subcontractors shall pay not less than the federal minimum wage rate which most closely approximates the duties of the employees in question.

5-1.07 APPRENTICES

Attention is directed to Sections 1777.5, 1777.6 and 1777.7 of the California Labor Code and Title 8, California Code of Regulations Section 200 et seq. To ensure compliance and complete understanding of the law regarding apprentices, and specifically the required ratio thereunder, each Contractor or subcontractor should, where some question exists, contact the Division of Apprenticeship Standards, 455 Golden Gate Avenue, San Francisco, CA 94102, or one of its branch offices prior to commencement of work on the public works contract. Responsibility for compliance with this section lies with the Contractor.

It is County policy to encourage the employment and training of apprentices on public works contracts as may be permitted under local apprenticeship standards.

5-1.08 CERTIFIED PAYROLL

As required under the provisions of Labor Code Section 1776, the Contractor and any subcontractors shall keep accurate payroll records as follows:

1. The payroll records shall show the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Contractor or subcontractors in connection with this project.
2. A certified copy of all payroll records enumerated above shall be available for inspection at all reasonable hours at the principal office of the Contractor as follows:
 - a. Make available or furnish to the employee or his or her authorized representative on request.
 - b. Make available for inspection or furnished upon request to a representative of the County, the State of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the State Department of Industrial Relations.
 - c. Make available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through either the County, the State Division of Labor Standards Enforcement, or the State Division of Apprenticeship Standards. The requesting party shall, prior to being provided the records, reimburse the costs of preparation by the Contractor, subcontractor, and the entity through which the request was made. The public shall not be given access to the records at the principal office of the Contractor.

5-1.09 DISPUTES RESOLUTION

As permitted by Public Contract Code section 20104, the County has elected to resolve any claims between the Contractor and the County pursuant to Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2 of the Public Contract Code. Attention is directed to Section 9, "Measurement and Payment" of the Standard Specifications for the contract claim procedure. The provisions of that Section constitute a non-judicial claim settlement procedure, and also step one of a two-step claim presentment procedure by agreement under Section 930.2 of the California Government Code. Specifically, step one is compliance with the contract claim procedure in accordance with the Contract Documents, including, but not limited to, Section 9, "Measurement and Payment" of the Standard Specifications. Step two is the filing of a timely Government Code Section 910 et seq. claim in accordance with the California Government Code. Any such claim shall affirmatively indicate Contractor's prior compliance with the contract claim procedure herein and previous dispositions under Section 9, "Measurement and Payment" of the Standard Specifications. Any claim that fails to conform to the contract claim procedure required in step one may not be asserted in any subsequent Government Code Section 910 et seq. claim.

As a condition precedent to arbitration or litigation, claims must first be mediated. Mediation shall be non-binding and utilize the services of a mediator mutually acceptable to the parties and, if the parties cannot agree, a mediator selected by the American Arbitration Association from its panel of approved mediators trained in construction industry

mediation. All statutes of limitations shall be tolled from the date of the demand for mediation until a date two weeks following the mediation's conclusion. The cost of mediation shall be equally shared by the parties.

If Contractor fails to comply with these claim procedures as to any claim, then Contractor waives its rights to such claim. County shall not be deemed to waive or alter any provision of this section or Section 9, "Measurement and Payment" of the Standard Specifications if, at County's sole discretion, County administers a claim in a manner not in accord with those provisions.

These provisions shall survive termination, breach, or completion of the Contract Documents.

5-1.10 RECORDS

The Contractor shall maintain cost accounting records for the contract pertaining to, and in such a manner as to provide a clear distinction between the following six categories of costs of work during the life of the contract:

- A. Direct costs of contract item work.
- B. Direct costs of changes in character in conformance with Section 4-1.03C, "Changes in Character of Work," of the Standard Specifications.
- C. Direct costs of extra work in conformance with Section 4-1.03D, "Extra Work," of the Standard Specifications.
- D. Direct costs of work not required by the contract and performed for others.
- E. Direct costs of work performed under a notice of potential claim in conformance with the provisions in Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications.
- F. Indirect costs of overhead.

Cost accounting records shall include the information specified for daily extra work reports in Section 9-1.03C, "Records," of the Standard Specifications. The requirements for furnishing the Engineer completed daily extra work reports shall only apply to work paid for on a force account basis.

The cost accounting records for the contract shall be maintained separately from other contracts, during the life of the contract, and for a period of not less than three (3) years after the date of acceptance of the Work. If the Contractor intends to file claims against the Department, the Contractor shall keep the cost accounting records specified above until complete resolution of all claims has been reached.

5-1.11 RECORDS EXAMINATION, AUDIT & RETENTION REQUIREMENTS

Contractor shall maintain and make available to the FHWA, the US DOT, the Comptroller General of the United States, the State of California, the California State Auditor, and County or to any of their duly authorized representatives all books, papers, job cost records, detailed cost estimates, claims, and accounts, including payment, property, payroll, personnel, subcontractor records, and financial records related to or which arise out of the Work or under terms of this Contract. Contractor shall maintain such books, records, data and documents in accordance with generally accepted accounting principles and in accordance with these special provisions and federal and state requirements. These books, papers, records, claims, and accounts shall be made available for examination during normal business hours and shall be readily available and accessible at Contractor's principal place of business in California, for audit during normal business hours at such place of business. Contractor shall provide office space, photocopies and other assistance to enable audit or inspection representatives to conduct such audits or inspections. This right to audit books and records directly related to this Contract shall also extend to any first-tier subcontractors employed under this Contract. Contractor shall incorporate this provision in any subcontract entered into as a result of this Contract and shall require its subcontractors to agree to cooperate with the above-listed agencies by making all appropriate and relevant Project records available to those agencies for audit and copying.

All of Contractor's books, papers, job cost records, detailed cost estimates, claims, and accounts, including payment, property, payroll, personnel, subcontractor records, and financial records related to or which arise out of the work or under terms of this Contract shall be retained for access, inspection and/or audit by the FHWA, the US DOT, the Comptroller General of the United States, the State of California, the California State Auditor, County or their duly authorized representatives for at least three (3) years after County's final payment to Contractor and/or the final resolution of any claims under this Contract. Contractor shall incorporate this provision in any subcontract entered into as a result of this Contract.

5-1.12 PAYMENTS

Attention is directed to Sections 9-1.06, "Partial Payments," and 9-1.07, "Payment After Acceptance," of the Standard Specifications and these special provisions.

For the purpose of making partial payments pursuant to Section 9-1.06, "Partial Payments," of the Standard Specifications, the amount set forth for the contract items of work hereinafter listed shall be deemed to be the maximum value of the contract item of work for progress payment purposes:

A. Progress Schedule (Critical Path Method)	\$3,000.00
B. Prepare Storm Water Pollution Prevention Plan	\$5,000.00
C. Construction Area Signs	\$5,000.00
D. Bridge Removal	\$42,000.00
E. Clearing and Grubbing	\$40,000.00

After acceptance of the contract pursuant to the provisions in Section 7-1.17, "Acceptance of Contract," of the Standard Specifications, the amount, if any, payable for a contract item of work in excess of the maximum value for progress payment purposes hereinabove listed for the item, will be included for payment in the first estimate made after acceptance of the contract.

In determining the partial payments to be made to the Contractor, only the following listed materials will be considered for inclusion in the payment as materials furnished but not incorporated in the work:

- A. Prestressing Strand & Hardware
- B. Bar Reinforcing Steel
- C. Railings
- D. 6-Inch Pressure Class 150 PVC Pipe
- E. 20-Inch Pressure Class 350 TR Flex Ductile Iron Pipe
- F. Valves and Appurtenances for 6-Inch & 20-Inch Waterline Pipe

5-1.13 PAYMENT OF WITHHELD FUNDS

The Department will retain 10% of the value of each progress payment (excluding mobilization payments) from each progress payment. In conformance with 49 CFR 26.29 the Department will release retention incrementally as follows:

1. When 25% of the total amount bid (excluding mobilization) has been completed, the Department will release all retention withheld up to this point;
2. When 50% of the total amount bid (excluding mobilization) has been completed, the Department will release all retention withheld since the previous release;
3. When 75% of the total amount bid (excluding mobilization) has been completed, the Department will release all retention withheld since the previous release.
4. The remaining retained funds shall be retained until thirty five (35) days after recordation of the Notice of Acceptance.

Work increments deemed complete by the Engineer under this section do not affect the Contractor's other contractual obligations pertaining to that work, including, but not limited to, the commencement of the warranty period or the Contractor's obligation of maintenance and responsibility for that increment of work. Relief from maintenance and responsibility shall be at the discretion of the Engineer and shall conform to the provisions of Section 7-1.15 "Relief from Maintenance and Responsibility" of the Standard Specifications.

The Contractor may elect to receive one hundred percent (100%) of payments due under the Contract from time to time, without retention of any portion of the payment by the County, by depositing securities of equivalent value with the County in accordance with the provisions of Section 22300 of the California Public Contract Code. Securities eligible for deposit hereunder shall be limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.

Funds withheld from progress payments to ensure performance of the contract that are eligible for payment into escrow or to an escrow agent pursuant to Section 22300 of the Public Contract Code do not include funds withheld or deducted from payment due to failure of the Contractor to fulfill a contract requirement.

5-1.14 INTEREST ON PAYMENTS

Interest shall be payable on progress payments, payments after acceptance, final payments, extra work payments, and claim payments as follows:

- A. Unpaid progress payments, payment after acceptance, and final payments shall begin to accrue interest 30 days after the receipt of an undisputed and properly submitted pay request from the Contractor defined herein as the pay estimate prepared by the Engineer and approved by the Contract Administrator for the County.
- B. Unpaid extra work bills shall begin to accrue interest 30 days after preparation of the first pay estimate following receipt of a properly submitted and undisputed extra work bill. To be properly submitted, the bill must be submitted within 7 days of the performance of the extra work and in conformance with the provisions in Section 9-1.03C, "Records," and Section 9-1.06, "Partial Payments," of the Standard Specifications. An undisputed extra work bill not submitted within 7 days of performance of the extra work will begin to accrue interest 30 days after the preparation of the second pay estimate following submittal of the bill.
- C. The rate of interest payable for unpaid progress payments, payments after acceptance, final payments, and extra work payments shall be 10 percent per annum.
- D. The rate of interest payable on unpaid and undisputed claims shall be 6 percent per annum. Interest shall begin to accrue 61 days after the Contractor submits to the Engineer information in sufficient detail to enable the Engineer to accept the claim statement.

The rate of interest payable on any award in arbitration shall not exceed 6% per annum in accordance with Public Contract Code Section 10240.13.

5-1.15 BUY AMERICA REQUIREMENTS

For a Federal-aid contract, furnish steel and iron materials to be incorporated into the work that are produced in the United States except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials [60 Fed Reg 15478 (03/24/1995)]
2. If the total combined cost of the materials does not exceed the greater of 0.1 percent of the total bid or \$2,500, material produced outside the United States may be used

Production includes:

1. Processing steel and iron materials, including smelting or other processes that alter the physical form or shape (such as rolling, extruding, machining, bending, grinding, and drilling) or chemical composition
2. Coating application, including epoxy coating, galvanizing, and painting, that protects or enhances the value of steel and iron materials

For steel and iron materials to be incorporated into the work, submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications that certifies all production processes occurred in the United States except for the above exceptions.

5-1.16 SUBCONTRACTOR AND DBE RECORDS

The Contractor shall maintain records showing the name and business address of each first-tier subcontractor. The records shall also show the name and business address of every DBE subcontractor, DBE vendor of materials and DBE trucking company, regardless of tier. The records shall show the date of payment and the total dollar figure paid to all of these firms. DBE prime contractors shall also show the date of work performed by their own forces along with the corresponding dollar value of the work.

Upon completion of the contract, a summary of these records shall be prepared on Exhibit 17-F, "Final Report – Utilization of Disadvantaged Business Enterprises (DBE), First –Tier Subcontractors (Form CEM-2402 (F)) and certified correct by the Contractor or the Contractor's authorized representative, and shall be furnished to the Engineer. The form shall be furnished to the Engineer with the Acceptance Statement, which accompanies the Proposed Final Pay Estimate. \$10,000 will be withheld from payment until the Form CEM-2402 (F) is submitted. The amount will be returned to the Contractor when a satisfactory Form CEM-2402 (F) is submitted.

Prior to the fifteenth of each month, the Contractor shall submit documentation to the Engineer showing the amount paid to DBE trucking companies. The Contractor shall also obtain and submit documentation to the Engineer showing the amount paid by DBE trucking companies to all firms, including owner-operators, for the leasing of trucks. If a DBE leases trucks from a non-DBE the Contractor may count only the fee or commission the DBE receives as a result of the lease arrangement.

The Contractor shall also obtain and submit documentation to the Engineer showing the truck number, owner's name, California Highway Patrol CA number, and if applicable, the DBE certification number of the owner of the truck for all trucks used during that month. This documentation shall be submitted on the form entitled "Monthly Trucking Verification Form" Form CEM-2404 (F) which is available from the Department.

5-1.17 DBE CERTIFICATION STATUS

If a DBE subcontractor is decertified during the life of the project, the decertified subcontractor shall notify the Contractor in writing with the date of decertification. If a subcontractor becomes a certified DBE during the life of the project, the subcontractor shall notify the Contractor in writing with the date of certification. The Contractor shall furnish the written documentation to the Engineer.

Upon completion of the contract "Disadvantage Business Enterprises (DBE) Certification Status Change Form", Form CEM-2403 (F) indicating the DBE's existing certification status shall be signed and certified correct by the Contractor. The certified form shall be furnished to the Engineer with the Acceptance Statement, which accompanies the Proposed Final Pay Estimate.

5-1.18 PERFORMANCE OF SUBCONTRACTORS

The subcontractors listed by you in your Proposal shall list therein the name and address of each subcontractor to whom the bidder proposes to subcontract portions of the work in an amount in excess of one-half of one percent of the total bid or \$10,000, whichever is greater, in accordance with the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code. The bidder's attention is invited to other provisions of the Act related to the imposition of penalties for a failure to observe its provisions by using unauthorized subcontractors or by making unauthorized substitutions.

UDBEs must perform work or supply materials as listed in the "Local Agency Bidder - UDBE Commitment" form specified under Section 2, "Proposal Requirements and Conditions," of these special provisions. Do not terminate a UDBE listed subcontractor for convenience and perform the work with your own forces or obtain materials from other sources without prior written authorization from the Engineer.

The County grants authorization to use other forces or sources of materials for requests that show any of the following justifications:

1. Listed UDBE fails or refuses to execute a written contract based on plans and specifications for the project.
2. You stipulate a bond is a condition of executing the subcontract and the listed UDBE fails to meet your bond requirements.
3. Work requires a contractor's license and listed UDBE does not have a valid license under Contractors License Law.
4. Listed UDBE fails or refuses to perform the work or furnish the listed materials.
5. Listed UDBE's work is unsatisfactory and not in compliance with the contract.
6. Listed UDBE delays or disrupts the progress of the work.
7. Listed UDBE becomes bankrupt or insolvent.

If a listed UDBE subcontractor is terminated, you must make good faith efforts to find another UDBE subcontractor to substitute for the original UDBE. The substitute UDBE must perform at least the same amount of work as the original UDBE under the contract to the extent needed to meet the UDBE goal.

The substitute UDBE must be certified as a DBE at the time of request for substitution.

The County does not pay for work or material unless it is performed or supplied by the listed UDBE, unless the UDBE is terminated in accordance with this section.

5-1.19 SUBCONTRACTING

No subcontract releases the Contractor from the contract or relieves the Contractor of their responsibility for a subcontractor's work.

If the Contractor violates Pub Cont Code § 4100 et seq., the County of El Dorado may exercise the remedies provided under Pub Cont Code § 4110. The County of El Dorado may refer the violation to the Contractors State License Board as provided under Pub Cont Code § 4111.

The Contractor shall perform work equaling at least 30 percent of the value of the original total bid with the Contractor's own employees and equipment, owned or rented, with or without operators.

Each subcontract must comply with the contract.

Each subcontractor must have an active and valid State contractor's license with a classification appropriate for the work to be performed (Bus & Prof Code, § 7000 et seq.).

Submit copies of subcontracts upon request by the Engineer.

Before subcontracted work starts, submit a Subcontracting Request form.

Do not use a debarred contractor; a current list of debarred contractors is available at the Department of Industrial Relations' Web site. In accordance with Title 2 CFR Section 1200.220 the Debarment and Suspension Provisions apply to all subcontracts associated with this contract. Contractor shall require all sub contractors to execute a debarment and suspension certification such as the one provided in the Proposal section of these Contract Documents.

Upon request by the Engineer, immediately remove and not again use a subcontractor who fails to prosecute the work satisfactorily.

Each subcontract and any lower tier subcontract that may in turn be made shall include the "Required Contract Provisions Federal-Aid Construction Contracts" in Section 14 of these special provisions. Noncompliance shall be corrected. Payment for subcontracted work involved will be withheld from progress payments due, or to become due, until correction is made. Failure to comply may result in termination of the contract.

5-1.20 PROMPT PROGRESS PAYMENT TO SUBCONTRACTORS

Attention is directed to Section 7108.5 of the Business and Professions Code, which requires a prime contractor or subcontractor to pay any subcontractor not later than ten (10) days of receipt of each progress payment unless otherwise agreed to in writing. In addition, Federal Regulation (49CFR 26.29) requires a prime contractor or subcontractor to pay a subcontractor no later than thirty (30) days after receipt of each payment, unless any delay or postponement of payment among the parties takes place only for good cause and with the prior written approval of County. Any violation of Section 7108.5 shall subject the violating contractor or subcontractor to the penalties, sanction and other remedies of that section. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to the contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the prime contractor, deficient subcontract performance, or noncompliance by a subcontractor.

Prime contractors shall include in their subcontracts language providing that prime contractors and subcontractors will use appropriate alternative dispute resolution mechanisms to resolve payment disputes.

5-1.21 PROMPT PAYMENT OF WITHHELD FUNDS TO SUBCONTRACTORS

The Department shall hold retainage from the prime Contractor and shall make prompt and regular incremental acceptances of portions, as determined by the Department, of the contract work and pay retainage to the prime Contractor based on these acceptances in accordance with "Payment of Withheld Funds" of these special provisions. The prime Contractor or subcontractor shall return all monies withheld in retention from the subcontractor within 30 days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the contract work by the Department. Federal law (49CFR26.29) requires that any delay or postponement of payment over 30 days may take place only for good cause and with the Department's prior written approval. Any violation of this provision shall subject the violating Contractor or subcontractor to the penalties, sanctions, and remedies specified in Section 7108.5 of the California Business and Professions Code. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to the prime contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the prime contractor, deficient subcontract or performance, and/or noncompliance by a subcontractor.

5-1.22 DISPUTE REVIEW BOARD

GENERAL

To assist in the resolution of disputes or potential claims arising out of the work of this project, a Dispute Review Board, hereinafter referred to as the "DRB," shall be established by the Engineer and Contractor cooperatively upon approval of the contract. The DRB is intended to assist the contract administrative claims resolution process as specified in the provisions in Section 9-1.04, "Notice of Potential Claim," and Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications and these special provisions. The DRB shall not serve as a substitute for provisions in the specifications in regard to filing potential claims. The requirements and procedures established in this section shall be a prerequisite to filing a claim, filing for arbitration, or filing for litigation prior or subsequent to project completion.

The DRB shall be utilized when dispute or potential claim resolution at the project level is unsuccessful. The DRB shall function as specified herein until the day of acceptance of the contract, at which time the work of the DRB will cease except for completion of unfinished reports. No DRB dispute meetings shall take place later than 30 days prior to acceptance of contract. After acceptance of contract, disputes or potential claims which have followed the dispute resolution processes of the Standard Specifications and these special provisions, but have not been resolved, shall be stated or restated by the Contractor, in response to the Proposed Final Estimate within the time limits provided in Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications. The County will review those claims in conformance with the provisions in Section 9-1.07B of the Standard Specifications. Following the adherence to and completion of the contractual administrative claims procedure, the Contractor may file for arbitration in conformance with the provisions in Section 9-1.10, "Arbitration," of the Standard Specifications and these special provisions.

Disputes, as used in this section, shall include differences of opinion, properly noticed as provided hereinafter, between the County and Contractor on matters related to the work and other subjects considered by the County or Contractor, or by both, to be of concern to the DRB on this project, except matters relating to Contractor, subcontractor or supplier potential claims not actionable against the Department as specified in these special provisions or quantification of disputes for overhead type expenses or costs. Disputes for overhead type expenses or costs shall conform to the requirements of Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications. Whenever the term "dispute" or "disputes" is used herein, it shall be deemed to include potential claims as well as disputes.

The DRB shall serve as an advisory body to assist in the resolution of disputes between the County and the Contractor, hereinafter referred to as the "parties." The DRB shall consider disputes referred to it, and furnish written reports containing findings and recommendations pertaining to those disputes, to the parties to aid in resolution of the differences between them. DRB findings and recommendations are not binding on the parties.

SELECTION PROCESS, DISCLOSURE AND APPOINTMENTS

The DRB shall consist of one member selected by the County and approved by the Contractor, one member selected by the Contractor and approved by the County, and a third member selected by the first 2 members and approved by both the County and the Contractor. The third member shall act as the DRB Chairperson.

DRB members shall be especially knowledgeable in the type of construction and contract documents potentially anticipated by the contract. DRB members shall discharge their responsibilities impartially as an independent body, considering the facts and circumstances related to the matters under consideration, pertinent provisions of the contract and applicable laws and regulations.

The County and the Contractor shall nominate and approve DRB members in conformance with the terms and conditions of the Dispute Review Board Agreement and these special provisions, within 45 days of the approval of the contract. Each party shall provide written notification to the other of the name of their selected DRB nominee along with the prospective member's complete written disclosure statement.

Disclosure statements shall include a resume of the prospective member's experience and a declaration statement describing past, present, anticipated, and planned relationships, including indirect relationships through the prospective member's primary or full-time employer, to this project and with the parties involved in this construction contract, including but not limited to, relevant subcontractors or suppliers to the parties, parties' principals, or parties' counsel. DRB members shall also include a full disclosure of close professional or personal relationships with all key members of the contract. Objections to nominees shall be based on a specific breach or violation of nominee responsibilities or on nominee qualifications under these provisions unless otherwise specified. The Contractor or the County may, on a one-time basis, object to the other's nominee without specifying a reason and this person will not be selected for the DRB. Another person shall then be nominated within 15 days.

The first duty of the County and Contractor selected members of the DRB shall be to select and recommend a prospective third DRB member to the parties for final selection and approval. The first 2 DRB members shall proceed with the selection of the third DRB member immediately upon receiving written notification from the County of their selection, and shall provide their recommendation simultaneously to the parties within 15 days of the notification.

The first 2 DRB members shall select a third DRB member subject to mutual approval of the parties or may mutually concur on a list of potentially acceptable third DRB members and submit the list to the parties for final selection and approval of the third member. The goal in the selection of the third member is to complement the professional experience of the first 2 members and to provide leadership for the DRB's activities.

The third prospective DRB member shall supply a full disclosure statement to the first 2 DRB members and to the parties prior to appointment.

An impasse shall be considered to have been reached if the parties are unable to approve a third member within 15 days of receipt of the recommendation of the first 2 DRB members, or if the first 2 DRB members are unable to agree upon a recommendation within their 15 day time limit. In the event of an impasse in selection of third DRB member the County and the Contractor shall each propose 3 candidates for the third DRB member position. The parties shall select the candidates proposed under this paragraph from the current list of arbitrators certified by the Public Works Contract Arbitration Committee created by Article 7.2 (commencing with Section 10245) of the State Contract Act. The first 2 DRB members shall then select one of the 6 proposed candidates in a blind draw.

No DRB member shall have prior direct involvement in this contract. No member shall have a financial interest in this contract or the parties thereto, within a period of 6 months prior to award of this contract or during the contract, except as follows:

- A. Compensation for services on this DRB.

- B. Ownership interest in a party or parties, documented by the prospective DRB member, that has been reviewed and determined in writing by the County to be sufficiently insignificant to render the prospective member acceptable to the County.
- C. Service as a member of other Dispute Review Boards on other contracts.
- D. Retirement payments or pensions received from a party that are not tied to, dependent on or affected by the net worth of the party.
- E. The above provisions apply to parties having a financial interest in this contract, including but not limited to contractors, subcontractors, suppliers, consultants, and legal and business services.

The Contractor or the County may reject any of the 3 DRB members who fail to fully comply at all times with all required employment and financial disclosure conditions of DRB membership as described in the Dispute Review Board Agreement and as specified herein. A copy of the Dispute Review Board Agreement is included in this section.

The Contractor, the County, and the 3 members of the DRB shall complete and adhere to the Dispute Review Board Agreement in administration of this DRB within 15 days of the parties' concurrence in the selection of the third member. No DRB meeting shall take place until the Dispute Review Board Agreement has been signed by all parties. The County authorizes the Engineer to execute and administer the terms of the Agreement. The person(s) designated by the Contractor as authorized to execute contract change orders shall be authorized to execute and administer the terms of this agreement, or to delegate the authority in writing. The operation of the DRB shall be in conformance with the terms of the Dispute Review Board Agreement.

COMPENSATION

The County and the Contractor shall bear the costs and expenses of the DRB equally. Each DRB member shall be compensated at an agreed rate of \$1,500 per day if time spent per meeting, including on-site time plus one hour of travel time, is greater than 4 hours. Each DRB member shall be compensated at an agreed rate of \$700 per day if time spent per meeting, including on-site time plus one hour of travel time, is less than or equal to 4 hours. The agreed rates shall be considered full compensation for on-site time, travel expenses, transportation, lodging, time for travel and incidentals for each day, or portion thereof, that the DRB member is at an authorized DRB meeting. No additional compensation will be made for time spent by DRB members in review and research activities outside the official DRB meetings unless that time, (such as time spent evaluating and preparing recommendations on specific issues presented to the DRB), has been specifically agreed to in advance by the County and Contractor. Time away from the project, which has been specifically agreed to in advance by the parties, will be compensated at an agreed rate of \$150 per hour. The agreed amount of \$150 per hour shall include all incidentals including expenses for telephone, fax, and computer services. Members serving on more than one DRB involving the Department, regardless of the number of meetings per day, shall not be paid more than the all inclusive rate per day or rate per hour for an individual project. The County will provide, at no cost to the Contractor, administrative services such as conference facilities and secretarial services to the DRB. These special provisions and the Dispute Review Board Agreement state the provisions for compensation and expenses of the DRB. DRB members shall be compensated at the same daily and hourly rate. The Contractor shall make direct payments to each DRB member for their participation in authorized meetings and approved hourly rate charges from invoices submitted by each DRB member. The County will reimburse the Contractor for the County's share of the costs. There will be no markups applied to expenses connected with the DRB, either by the DRB members or by the Contractor when requesting payment of the County's share of DRB expenses. Regardless of the DRB recommendation, neither party shall be entitled to reimbursement of DRB costs from the other party.

REPLACEMENT OF DRB MEMBERS

Service of a DRB member may be terminated at any time with not less than 15 days notice as follows:

- A. The County may terminate service of the County appointed member.
- B. The Contractor may terminate service of the Contractor appointed member.
- C. Upon the written recommendation of the County and Contractor appointed members for the removal of the third member.
- D. Upon resignation of a member.
- E. The County or Contractor may terminate the service of any member who fails to fully comply with all required employment and financial disclosure conditions of DRB membership.

When a member of the DRB is replaced, the replacement member shall be appointed in the same manner as the replaced member was appointed. The appointment of a replacement DRB member will begin promptly upon determination of the need for replacement and shall be completed within 15 days. Changes in either of the DRB members chosen by the 2 parties will not require re-selection of the third member, unless both parties agree to such re-selection in writing. The Dispute Review Board Agreement shall be amended to reflect the change of a DRB member.

OPERATION

The following procedure shall be used for dispute resolution:

- A. If the Contractor objects to any decision, act or order of the Engineer, the Contractor shall give written notice of potential claim in conformance with the provisions in Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications and these special provisions, including the provision of applicable cost documentation; or file written protests or notices in conformance with the provisions in the Standard Specifications and these special provisions.
- B. The Engineer will respond, in writing, to the Contractor's written supplemental notice of potential claim within 20 days of receipt of the notice.
- C. Within 15 days after receipt of the Engineer's written response, the Contractor shall, if the Contractor still objects, file a written reply with the Engineer, stating clearly and in detail the basis of the objection.
- D. Following an objection to the Engineer's written response, the Contractor shall refer the dispute to the DRB if the Contractor wishes to further pursue the objection to the Engineer's decision. The Contractor shall make the referral in writing to the DRB, simultaneously copied to the County, within 21 days after receipt of the written response from the Engineer. The written dispute referral shall describe the disputed matter in individual discrete segments so that it will be clear to both parties and the DRB what discrete elements of the dispute have been resolved, and which remain unresolved, and shall include an estimate of the cost of the affected work and impacts, if any, on project completion.
- E. By failing to submit the written notice of referral to the DRB, within 21 days after receipt of the Engineer's written response to the supplemental notice of potential claim, the Contractor waives future claims and arbitration on the matter in contention.
- F. The Contractor and the County shall each be afforded an opportunity to be present and to be heard by the DRB, and to offer evidence. Either party furnishing written evidence or documentation to the DRB must furnish copies of such information to the other party a minimum of 15 days prior to the date the DRB is scheduled to convene the meeting for the dispute. Either party shall produce such additional evidence as the DRB may deem necessary to reach an understanding and a determination of the dispute. The party furnishing additional evidence shall furnish copies of such additional evidence to the other party at the same time the evidence is provided to the DRB. The DRB shall not consider evidence not furnished in conformance with the terms specified herein.
- G. Upon receipt by the DRB of a written referral of a dispute, the DRB shall convene to review and consider the dispute. The dispute meeting shall be held no earlier than 30 days and no later than 60 days after receipt of the written referral unless otherwise agreed to by all parties. The DRB shall determine the time and location of the DRB dispute meeting, with due consideration for the needs and preferences of the parties while recognizing the paramount importance of a timely hearing of the dispute.
- H. There shall be no participation of either party's attorneys at DRB dispute meetings.
- I. There shall be no participation of persons who are not directly involved in the contract or who do not have direct knowledge of the dispute, including but not limited to consultants, except for expert testimony allowed at the discretion of the DRB and with approval prior to the dispute meeting by both parties.
- J. The DRB shall furnish a report, containing findings and recommendations as described in the Dispute Review Board Agreement, in writing to both the County and the Contractor. The DRB may request clarifying information of either party within 10 days after the DRB dispute meeting. Requested information shall be submitted to the DRB within 10 days of the DRB request. The DRB shall complete its report, including minority opinion, if any, and submit it to the parties within 30 days of the DRB dispute meeting, except that time extensions may be granted at the request of the DRB with the written concurrence of both parties. The report shall include the facts and circumstances related to the matters under consideration, pertinent provisions of the contract, applicable laws and regulations, and actual costs and time incurred as shown on the Contractor's cost accounting records. The DRB shall make recommendations on the merit of the dispute and, if appropriate, recommend guidelines for determining compensation.
- K. Within 30 days after receiving the DRB's report, both the County and the Contractor shall respond to the DRB in writing signifying that the dispute is either resolved or remains unresolved. Failure to provide the written response within the time specified, or a written rejection of the DRB's recommendation or response to a request

for reconsideration presented in the report by either party, shall conclusively indicate that the party(s) failing to respond accepts the DRB recommendation. Immediately after responses have been received from both parties, the DRB shall provide copies of both responses to the parties simultaneously. Either party may request clarification of elements of the DRB's report from the DRB prior to responding to the report. The DRB shall consider any clarification request only if submitted within 10 days of receipt of the DRB's report, and if submitted simultaneously in writing to both the DRB and the other party. Each party may submit only one request for clarification for any individual DRB report. The DRB shall respond, in writing, to requests for clarification within 10 days of receipt of such requests.

- L. The DRB's recommendations, stated in the DRB's reports, are not binding on either party. Either party may seek a reconsideration of a recommendation of the DRB. The DRB shall only grant a reconsideration based upon submission of new evidence and if the request is submitted within the 30-day time limit specified for response to the DRB's written report. Each party may submit only one request for reconsideration regarding an individual DRB recommendation.
- M. If the County and the Contractor are able to resolve their dispute with the aid of the DRB's report, the County and Contractor shall promptly accept and implement the recommendations of the DRB. If the parties cannot agree on compensation within 60 days of the acceptance by both parties of the DRB's recommendation, either party may request the DRB to make a recommendation regarding compensation.
- N. The County or the Contractor shall not call DRB members who served on the DRB for this contract as witnesses in arbitration proceedings which may arise from this contract, and all documents created by the DRB shall be inadmissible as evidence in subsequent arbitration proceedings, except the DRB's final written reports on each issue brought before it.
- O. The County and Contractor shall jointly indemnify and hold harmless the DRB members from and against all claims, damages, losses, and expenses, including but not limited to attorney's fees, arising out of and resulting from the findings and recommendations of the DRB.
- P. The DRB members shall have no claim against the County or the Contractor, or both, from claimed harm arising out of the parties' evaluations of the DRB's report.

DISPUTES INVOLVING SUBCONTRACTOR POTENTIAL CLAIMS

For purposes of this section, a "subcontractor potential claim" shall include any potential claim by a subcontractor (including also any pass through potential claims by a lower tier subcontractor or supplier) against the Contractor that is actionable by the Contractor against the Department which arises from the work, services, or materials provided or to be provided in connection with the contract. If the Contractor determines to pursue a dispute against the Department that includes a subcontractor potential claim, the dispute shall be processed and resolved in conformance with these special provisions and in conformance with the following:

- A. The Contractor shall identify clearly in submissions pursuant to this section, that portion of the dispute that involves a subcontractor potential claim or potential claims.
- B. The Contractor shall include, as part of its submission pursuant to Step D above, a certification (False Claims Act Certification) by the subcontractor's or supplier's officer, partner, or authorized representative with authority to bind the subcontractor and with direct knowledge of the facts underlying the subcontractor potential claim. The Contractor shall submit a certification that the subcontractor potential claim is acknowledged and forwarded by the Contractor. The form for these certifications is available from the Engineer.
- C. At DRB dispute meetings involving one or more subcontractor potential claims, the Contractor shall require that each subcontractor involved in the dispute have present an authorized representative with actual knowledge of the facts underlying the subcontractor potential claim to assist in presenting the subcontractor potential claim and to answer questions raised by the DRB members or the Department's representatives.
- D. Failure by the Contractor to declare a subcontractor potential claim on behalf of its subcontractor (including lower tier subcontractors' and suppliers' pass through potential claims) at the time of submission of the Contractor's potential claims, as provided hereunder, shall constitute a release of the County by the Contractor of such subcontractor potential claim.
- E. The Contractor shall include in all subcontracts under this contract that subcontractors and suppliers of any tier (a) agree to submit subcontractor potential claims to the Contractor in a proper form and in sufficient time to allow processing by the Contractor in conformance with the Dispute Review Board resolution specifications; (b) agree to be bound by the terms of the Dispute Review Board provisions to the extent applicable to subcontractor potential claims; (c) agree that, to the extent a subcontractor potential claim is involved, completion of all steps required under these Dispute Review Board special provisions shall be a condition precedent to pursuit by the subcontractor of other remedies permitted by law, including without limitation of a lawsuit against the

Contractor; and (d) agree that the existence of a dispute resolution process for disputes involving subcontractor potential claims shall not be deemed to create any claim, right, or cause of action by any subcontractor or supplier against the Department.

Notwithstanding the foregoing, this Dispute Review Board special provision shall not apply to, and the DRB shall not have the authority to consider, subcontractor potential claims between the subcontractor(s) or supplier(s) and the Contractor that are not actionable by the Contractor against the Department.

DISPUTE REVIEW BOARD AGREEMENT

A copy of the "Dispute Review Board Agreement" to be executed by the Contractor, County and the 3 DRB members after approval of the contract follows:
Form 6202 Rev

DISPUTE REVIEW BOARD AGREEMENT

(Contract Identification)

Contract No. _____

THIS DISPUTE REVIEW BOARD AGREEMENT, hereinafter called "AGREEMENT", made and entered into this _____ day of _____, _____, between the County of El Dorado, acting through the County of El Dorado Department of Transportation and the Director of Transportation, hereinafter called the "COUNTY," _____ hereinafter called the "CONTRACTOR," and the Dispute Review Board, hereinafter called the "DRB" consisting of the following members:

_____,
(Contractor Appointee)

_____,
(County Appointee)

and _____
(Third Person)

WITNESSETH, that

WHEREAS, the COUNTY and the CONTRACTOR, hereinafter called the "parties," are now engaged in the construction on the State Highway project referenced above; and

WHEREAS, the special provisions for the above referenced contract provides for the establishment and operation of the DRB to assist in resolving disputes; and

WHEREAS, the DRB is composed of three members, one selected by the COUNTY, one selected by the CONTRACTOR, and the third member selected by the other two members and approved by the parties;

NOW THEREFORE, in consideration of the terms, conditions, covenants, and performance contained herein, or attached and incorporated and made a part hereof, the COUNTY, the CONTRACTOR, and the DRB members hereto agree as follows:

SECTION I DESCRIPTION OF WORK

To assist in the resolution of disputes between the parties, the contract provides for the establishment and the operation of the DRB. The intent of the DRB is to fairly and impartially consider disputes placed before it and provide written recommendations for resolution of these disputes to both parties. The members of this DRB shall perform the services necessary to participate in the DRB's actions as designated in Section II, Scope of Work.

SECTION II SCOPE OF WORK

The scope of work of the DRB includes, but is not limited to, the following:

A. OBJECTIVE

The principal objective of the DRB is to assist in the timely resolution of disputes between the parties arising from performance of this contract. It is not intended for either party to default on their normal responsibility to amicably and fairly settle their differences by indiscriminately assigning them to the DRB. It is intended that the mere existence of the DRB will encourage the parties to resolve disputes without resorting to this review procedure. But when a dispute that is serious enough to warrant the DRB's review does develop, the process for prompt and efficient action will be in place.

B. PROCEDURES

The DRB shall render written reports on disputes between the parties arising from the construction contract. Prior to consideration of a dispute, the DRB shall establish rules and regulations that will govern the conduct of its business and reporting procedures in conformance with the requirements of the contract and the terms of this AGREEMENT. DRB recommendations, resulting from its consideration of a dispute, shall be furnished in writing to both parties. The recommendations shall be based on facts and circumstances involved in the dispute, pertinent contract provisions, applicable laws and regulations. The recommendations shall find one responsible party in a dispute; shared or "jury" determinations shall not be rendered. The DRB shall make recommendations on the merit of the dispute, and if appropriate, recommend guidelines for determining compensation. If the parties cannot agree on compensation within 60 days of the acceptance by both parties of the DRB's recommendation, either party may request the DRB to make a recommendation regarding compensation.

The DRB shall refrain from officially giving advice or consulting services to anyone involved in the contract. The individual members shall act in a completely independent manner and while serving as members of the DRB shall have no consulting business connections with either party or its principals or attorneys or other affiliates (subcontractors, suppliers, etc.) who have a beneficial interest in the contract.

During scheduled meetings of the DRB as well as during dispute meetings, DRB members shall refrain from expressing opinions on the merits of statements on matters under dispute or potential dispute. Opinions of DRB members expressed in private sessions shall be kept strictly confidential. Individual DRB members shall not meet with, or discuss contract issues with individual parties, except as directed by the DRB Chairperson. Such discussions or meetings shall be disclosed to both parties. Other discussions regarding the project between the DRB members and the parties shall be in the presence of all three members and both parties. Individual DRB members shall not undertake independent investigations of any kind pertaining to disputes or potential disputes, except with the knowledge of both parties and as expressly directed by the DRB Chairperson.

C. CONSTRUCTION SITE VISITS, PROGRESS MEETINGS AND FIELD INSPECTIONS

The DRB members shall visit the project site and meet with representatives of the parties to keep abreast of construction activities and to develop familiarity with the work in progress. Scheduled progress meetings shall be held at or near the project site. The DRB shall meet at least once at the start of the project, and at least once every 4 months thereafter. The frequency, exact time, and duration of additional site visits and progress meetings shall be as recommended by the DRB and approved by the parties consistent with the construction activities or matters under consideration and dispute. Each meeting shall consist of a round table discussion and a field inspection of the work being performed on the contract, if necessary. Each meeting shall be attended by representatives of both parties. The agenda shall generally be as follows:

1. Meeting opened by the DRB Chairperson.
2. Remarks by the COUNTY's representative.
3. A description by the CONTRACTOR's representative of work accomplished since the last meeting; the current schedule status of the work; and a forecast for the coming period.
4. An outline by the CONTRACTOR's representative of potential problems and a description of proposed solutions.
5. An outline by the COUNTY's representative of the status of the work as the COUNTY views it.
6. A brief description by the CONTRACTOR's or COUNTY's representative of potential claims or disputes which have surfaced since the last meeting.
7. A summary by the COUNTY's representative, the CONTRACTOR's representative, or the DRB of the status of past disputes and potential claims.

The COUNTY's representative will prepare minutes of all progress meetings and circulate them for revision and approval by all concerned within 10 days of the meeting.

The field inspection shall cover all active segments of the work, the DRB being accompanied by both parties' representatives. The field inspection may be waived upon mutual agreement of the parties.

D. DRB CONSIDERATION AND HANDLING OF DISPUTES

Upon receipt by the DRB of a written referral of a dispute, the DRB shall convene to review and consider the dispute. The dispute meeting shall be held no earlier than 30 days and no later than 60 days after receipt of the written referral, unless otherwise agreed to by all parties. The DRB shall determine the time and location of DRB dispute meetings, with due consideration for the needs and preferences of the parties while recognizing the paramount importance of speedy resolution of issues. No dispute meetings shall take place later than 30 days prior to acceptance of contract.

Normally, dispute meetings shall be conducted at or near the project site. However, any location that would be more convenient and still provide required facilities and access to necessary documentation shall be satisfactory.

Both parties shall be given the opportunity to present their evidence at these dispute meetings. It is expressly understood that the DRB members are to act impartially and independently in the consideration of the contract provisions, applicable laws and regulations, and the facts and conditions surrounding any dispute presented by either party, and that the recommendations concerning any such dispute are advisory and nonbinding on the parties.

The DRB may request that written documentation and arguments from both parties be sent to each DRB member, through the DRB Chairperson, for review before the dispute meeting begins. A party furnishing written documentation to the DRB shall furnish copies of such information to the other party at the same time that such information is supplied to the DRB.

DRB dispute meetings shall be informal. There shall be no testimony under oath or cross-examination. There shall be no reporting of the procedures by a shorthand reporter or by electronic means. Documents and verbal statements shall be received by the DRB in conformance with acceptance standards established by the DRB. These standards need not comply with prescribed legal laws of evidence.

The third DRB member shall act as Chairperson for dispute meetings and all other DRB activities. The parties shall have a representative at all dispute meetings. Failure to attend a duly noticed dispute meeting by either of the parties shall be conclusively considered by the DRB as indication that the non-attending party considers written submittals as their entire and complete argument. The claimant shall discuss the dispute, followed by the other party. Each party shall then be allowed one or more rebuttals until all aspects of the dispute are thoroughly covered. DRB members shall ask questions, seek clarification, and request further data from either of the parties as may be necessary to assist in making a fully informed recommendation. The DRB may request from either party documents or information that would assist the DRB in making its findings and recommendations including, but not limited to, documents used by the CONTRACTOR in preparing the bid for the project. A refusal by a party to provide information requested by the DRB may be considered by the DRB as an indication that the requested material would tend to disprove that party's position. In large or complex cases, additional dispute meetings may be necessary in order to consider all the evidence presented by both parties. All involved parties shall maintain the confidentiality of all documents and information, as provided in this AGREEMENT.

During dispute meetings, no DRB member shall express an opinion concerning the merit of any facet of the case. DRB deliberations shall be conducted in private, with interim individual views kept strictly confidential.

After dispute meetings are concluded, the DRB shall meet in private and reach a conclusion supported by 2 or more members. Private sessions of the DRB may be held at a location other than the job site or by electronic conferencing as deemed appropriate, in order to expedite the process.

The DRB's findings and recommendations, along with discussion of reasons therefor, shall then be submitted as a written report to both parties. Recommendations shall be based on the pertinent contract provisions, applicable laws and regulations, and facts and circumstances related to the dispute. The report shall be thorough in discussing the facts considered, the contract language, law or regulation viewed by the DRB as pertinent to the issues, and the DRB's interpretation and philosophy in arriving at its conclusions and recommendations. The DRB's report shall stand on its

own, without attachments or appendices. The DRB Chairperson shall furnish a copy of the written recommendation report to the El Dorado County Director of Transportation, 2850 Fairlane Court, Placerville, CA 95667. With prior written approval of both parties, the DRB may obtain technical services necessary to adequately review the disputes presented, including audit, geotechnical, schedule analysis and other services. The parties' technical staff may supply those services as appropriate. The cost of technical services, as agreed to by the parties, shall be borne equally by the 2 parties as specified in an approved contract change order. The CONTRACTOR will not be entitled to markups for the payments made for these services.

The DRB shall resist submittal of incremental portions of information by either party, in the interest of making a fully informed decision and recommendation.

The DRB shall make every effort to reach a unanimous decision. If this proves impossible, the dissenting member shall prepare a minority opinion, which shall be included in the DRB's report.

Although both parties should place weight upon the DRB's recommendations, they are not binding. Either party may appeal a recommendation to the DRB for reconsideration. However, reconsideration shall only be allowed when there is new evidence to present, and the DRB shall accept only one appeal from each party pertaining to an individual DRB recommendation. The DRB shall hear appeals in conformance with the terms described in the Section entitled "Dispute Review Board" in the special provisions.

E. DRB MEMBER REPLACEMENT

Should the need arise to appoint a replacement DRB member, the replacement DRB member shall be appointed in the same manner as the original DRB members were appointed. The selection of a replacement DRB member shall begin promptly upon notification of the necessity for a replacement and shall be completed within 15 days. This AGREEMENT shall be amended to indicate change in DRB membership.

SECTION III CONTRACTOR RESPONSIBILITIES

The CONTRACTOR shall furnish to each DRB member one copy of pertinent documents that are or may become necessary for the DRB to perform their function. Pertinent documents are written notices of potential claim, responses to those notices, drawings or sketches, calculations, procedures, schedules, estimates, or other documents which are used in the performance of the work or in justifying or substantiating the CONTRACTOR's position. The CONTRACTOR shall also furnish a copy of such pertinent documents to the COUNTY, in conformance with the terms outlined in the special provisions.

SECTION IV COUNTY RESPONSIBILITIES

The COUNTY will furnish the following services and items:

A. CONTRACT RELATED DOCUMENTS

The COUNTY will furnish to each DRB member one copy of Notice to Contractors and Special Provisions, Proposal and Contract, Plans, Standard Specifications, and Standard Plans, change orders, written instructions issued by the COUNTY to the CONTRACTOR, or other documents pertinent to any dispute that has been referred to the DRB and necessary for the DRB to perform its function.

B. COORDINATION AND SERVICES

The COUNTY, through the Engineer, will, in cooperation with the CONTRACTOR, coordinate the operations of the DRB. The Engineer will arrange or provide conference facilities at or near the project site and provide secretarial and copying services to the DRB without charge to the CONTRACTOR.

SECTION V TIME FOR BEGINNING AND COMPLETION

Once established, the DRB shall be in operation until the day of acceptance of the contract. The DRB members shall not begin work under the terms of this AGREEMENT until authorized in writing by the COUNTY.

SECTION VI PAYMENT

A. ALL INCLUSIVE RATE PAYMENT

The COUNTY and the CONTRACTOR shall bear the costs and expenses of the DRB equally. Each DRB member shall be compensated at an agreed rate of \$1,500 per day if time spent per meeting, including on-site time plus one hour

of travel time, is greater than 4 hours. Each DRB member shall be compensated at an agreed rate of \$700 per day if time spent per meeting, including on-site time plus one hour of travel time, is less than or equal to 4 hours. The agreed rates shall be considered full compensation for on-site time, travel expenses, transportation, lodging, time for travel and incidentals for each day, or portion thereof, that the DRB member is at an authorized DRB meeting. No additional compensation will be made for time spent by DRB members in review and research activities outside the official DRB meetings unless that time has been specifically agreed to in advance by the COUNTY and CONTRACTOR. Time away from the project that has been specifically agreed to in advance by the parties will be compensated at an agreed rate of \$150 per hour. The agreed amount of \$150 per hour shall include all incidentals including expenses for telephone, fax, and computer services. Members serving on more than one DRB involving the County, regardless of the number of meetings per day, shall not be paid more than the all inclusive rate per day or rate per hour for an individual project. The COUNTY will provide, at no cost to the CONTRACTOR, administrative services such as conference facilities and secretarial services to the DRB.

B. PAYMENTS

DRB members shall be compensated at the same rate. The CONTRACTOR shall make direct payments to each DRB member for their participation in authorized meetings and approved hourly rate charges from invoices submitted by each DRB member. The COUNTY will reimburse the CONTRACTOR for its share of the costs of the DRB.

The DRB members may submit invoices to the CONTRACTOR for partial payment for work performed and services rendered for their participation in authorized meetings not more often than once per month during the progress of the work. The invoices shall be in a format approved by the parties and accompanied by a general description of activities performed during that billing period. Payment for hourly fees, at the agreed rate, shall not be paid to a DRB member until the amount and extent of those fees are approved by the COUNTY and CONTRACTOR.

Invoices shall be accompanied by original supporting documents, which the CONTRACTOR shall include with the extra work billing when submitting for reimbursement of the COUNTY's share of cost from the COUNTY. The CONTRACTOR will be reimbursed for one-half of approved costs of the DRB. No markups will be added to the CONTRACTOR's payment.

C. INSPECTION OF COSTS RECORDS

The DRB members and the CONTRACTOR shall keep available for inspection by representatives of the COUNTY and the United States, for a period of 3 years after final payment, the cost records and accounts pertaining to this AGREEMENT. If any litigation, claim, or audit arising out of, in connection with, or related to this contract is initiated before the expiration of the 3-year period, the cost records and accounts shall be retained until such litigation, claim, or audit involving the records is completed.

SECTION VII ASSIGNMENT OF TASKS OF WORK

The DRB members shall not assign the work of this AGREEMENT.

SECTION VIII TERMINATION OF DRB MEMBERS

DRB members may resign from the DRB by providing not less than 15 days written notice of the resignation to the COUNTY and CONTRACTOR. DRB members may be terminated by their original appointing power or by either party, for failing to fully comply at all times with all required employment and financial disclosure conditions of DRB membership in conformance with the terms of the contract.

Service of a DRB member may be terminated at any time with not less than 15 days notice as follows:

- A. The State may terminate service of the State appointed member.
- B. The Contractor may terminate service of the Contractor appointed member.
- C. Upon the written recommendation of the State and Contractor appointed members for the removal of the third member.
- D. Upon resignation of a member.

When a member of the DRB is replaced, the replacement member shall be appointed in the same manner as the replaced member was appointed. The appointment of a replacement DRB member will begin promptly upon determination of the need for replacement and shall be completed within 15 days. Changes in either of the DRB members

chosen by the 2 parties will not require re-selection of the third member, unless both parties agree to such a re-selection in writing. The Dispute Resolution Board Agreement shall be amended to reflect the change of a DRB member.

Each party shall document the need for replacement and substantiate the replacement request in writing to the other party and DRB members.

SECTION IX LEGAL RELATIONS

The parties hereto mutually understand and agree that the DRB member in the performance of duties on the DRB, is acting in the capacity of an independent agent and not as an employee of either party.

No party to this AGREEMENT shall bear a greater responsibility for damages or personal injury than is normally provided by Federal or State of California Law.

Notwithstanding the provisions of this contract that require the CONTRACTOR to indemnify and hold harmless the COUNTY, the parties shall jointly indemnify and hold harmless the DRB members from and against all claims, damages, losses, and expenses, including but not limited to attorney's fees, arising out of and resulting from the findings and recommendations of the DRB.

SECTION X CONFIDENTIALITY

The parties hereto mutually understand and agree that all documents and records provided by the parties in reference to issues brought before the DRB, which documents and records are marked "Confidential - for use by the DRB only," shall be kept in confidence and used only for the purpose of resolution of subject disputes, and for assisting in development of DRB findings and recommendations; that such documents and records will not be utilized or revealed to others, except to officials of the parties who are authorized to act on the subject disputes, for any purposes, during the life of the DRB. Upon termination of this AGREEMENT, said confidential documents and records, and all copies thereof, shall be returned to the parties who furnished them to the DRB. However, the parties understand that such documents shall be subsequently discoverable and admissible in court or arbitration proceedings unless a protective order has been obtained by the party seeking further confidentiality.

SECTION XI DISPUTES

Disputes between the parties hereto, including disputes between the DRB members and either party or both parties, arising out of the work or other terms of this AGREEMENT, which cannot be resolved by negotiation and mutual concurrence between the parties, or through the administrative process provided in the contract, shall be resolved by arbitration as provided in Section 9-1.10, "Arbitration," of the Standard Specifications. Disputes between the DRB and either party, which cannot be resolved by negotiation and mutual concurrence shall be resolved in the appropriate forum.

SECTION XII VENUE, APPLICABLE LAW, AND PERSONAL JURISDICTION

In the event that any party, including an individual member of the DRB, deems it necessary to institute arbitration proceedings to enforce any right or obligation under this AGREEMENT, the parties hereto agree that such action shall be initiated in the Office of Administrative Hearings of the State of California. The parties hereto agree that all questions shall be resolved by arbitration by application of California law and that the parties to such arbitration shall have the right of appeal from such decisions to the Superior Court in conformance with the laws of the State of California. Venue for the arbitration shall be Sacramento or any other location as agreed to by the parties.

SECTION XIII FEDERAL REVIEW AND REQUIREMENTS

On Federal-Aid contracts, the Federal Highway Administration shall have the right to review the work of the DRB in progress, except for private meetings or deliberations of the DRB that do not become part of the project records.

Other Federal requirements in this agreement shall only apply to Federal-Aid contracts.

SECTION XIV CERTIFICATION OF THE CONTRACTOR, THE DRB MEMBERS, AND THE COUNTY

IN WITNESS WHEREOF, the parties hereto have executed this AGREEMENT as of the day and year first above written.

DRB MEMBER

DRB MEMBER

By: _____

By: _____

Title: _____

Title : _____

DRB MEMBER

By : _____

Title : _____

CONTRACTOR

COUNTY OF EL DORADO
DEPARTMENT OF TRANSPORTATION

By: _____

By: _____

Title: _____

Title: _____

5-1.23 COPYRIGHTS, TRADEMARKS, AND PATENTS

This project will be funded, in part, with federal funds. The USDOT reserve a royalty-free, non-exclusive, and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use, for Federal Government proposes:

- a) The copyright in any work developed under a grant, sub-grant, or contract under a grant or subgrant;
- b) Any rights of copyright to which a grantee, subgrantee or a contractor purchases ownership with grant support; and
- c) The patent rights to any discovery or invention which arises or is developed in the course of or under such contract.

5-1.24 UTILITIES

Attention is directed to Section 8-1.10 "Utility and Non-Highway Facilities" and Section 15, "Existing Highway Facilities" of the Standard Specifications and these special provisions.

The Contractor shall determine by potholing or other means the exact utility locations in advance of performing the contract items of work especially placement of the drainage work.

If the Contractor while performing the Contract discovers utility facilities not identified by the Engineer in the Contract Plans or Specifications, the Contractor shall immediately notify the Engineer in writing. The Contractor shall schedule the project so as to allow the Engineer forty-eight (48) hours, excluding Saturdays, Sundays, and holidays, to determine the work to be done when a conflict exists. Owner of the utility facility shall have the sole discretion to perform the repairs or relocation work itself, or to permit the Contractor to do such repairs or relocation work at a reasonable price. In the event that the utility owner permits the Contractor to perform the work, the work will be paid for by the County, via Force Account Change Order. Compensation to the Contractor for said cost shall be in accordance with Section 4215 of the Government Code and with Section 9-1.03, "Force Account Payment" of the Standard Specifications.

Nothing herein shall be construed to require the Utility Owner to locate the presence of any existing services not expressly included in Government Code Section 4125, nor limit the Owner's rights or remedies set forth therein.

The Contractor shall protect from damage existing utility and other non-highway facilities that are to remain in place. This protection may consist of shoring an existing utility. Damage due to the Contractor's failure to exercise reasonable care shall be repaired at his cost and expense.

Attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety and welfare of workers and of the public. Facilities requiring special precautions include, but are not limited to: conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases; natural gas in pipelines greater than 150 mm in diameter or pipelines operating at pressures greater than 415 kPa (gage); underground electric supply system conductors or cables, with potential to ground of more than 300 V, either directly buried or in a duct or conduit which do not have concentric grounded or other effectively grounded metal shields or sheaths.

The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire or other structure. Regional notification centers include, but are not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert	811

The Contractor shall determine the exact location of existing underground utilities in conflict with the excavation by excavating with hand tools within the area of the approximate location of the underground utility as determined by the field marking provided in accordance with Section 4216.3 of the Government Code before using any power-operated or power-driven excavating or boring equipment within the approximate location of the underground utilities. Power-operated or power-driven excavating or boring equipment may be used for the removal of any existing pavement if there are no existing underground utilities contained in the pavement. If mutually agreeable with the utility company and Contractor, Contractor may utilize power-operated or power-driven excavating or boring equipment within the approximate location of the underground utilities and to any depth.

Installation of the following utility facilities will require coordination with the Contractor's operations. The Contractor shall notify the Engineer, in writing, the number of days shown in the table below prior to doing work in the vicinity of the facility. The Contractor shall make the necessary arrangements with each utility company, and shall submit a schedule of the grading and utility work verified by a representative of the utility company to the Engineer. The schedule of work shall provide not less than the following number of working days, as defined in Section 8-1.06, "Time of Completion," of the Standard Specifications for the utility company to complete their work. For days that the Contractor is unable to perform the controlling items of work due to the utility work, the Engineer will either declare the days as non-working days, or temporarily suspend the work for those days.

The existing utility poles shall be protected in place until the utility relocations are completed and existing poles removed. The Contractor shall not alter the existing grade within the specified distance of the existing poles, as shown on the plans or as directed by the Utility Owner, to protect the existing poles in place. Within a ten-foot radius of where the new poles will be placed, the Contractor shall construct cut and/or fill slopes to lines and grades of the plans prior to the Utility Owner setting new poles.

The Utility Owner's work shall be performed during the specified periods within the duration of the construction activities, as noted in the following table. Each Utility Owner shall be allotted their specified duration and shall not be concurrent with the other utility relocation work.

Utility Owner	Location	Time of Occurrence	Type of Work	Calendar Days of Notification	Working Days to Complete
PG&E	'GVR-1' 15+37 to 17+09 Rt. (See Sheet U-1)	Stage 1 (after rough grading)	Set new pole (1) & relocate associated electric transmission and service lines.	30	10
AT&T	'GVR-1' 15+37 to 20+25 Rt. (See Sheet U-1)	Stage 1 (after rough grading)	Set new pole (1), relocate associated communications lines after PG&E poles are set & remove (2) poles.	30	15
Comcast	'GVR-1' 17+09 to 20+25 Rt. (See Sheet U-1)	Stage 1 (after rough grading)	Relocate associated cable lines after PG&E & AT&T poles are set.	30	5
EID	(See Sheets U-1, U-2 & W-2 thru W-3)	Stage 1 (See Section 10-1.01 "Order of Work" for specific requirements)	Relocate 6 & 20-inch waterlines.	N/A*	N/A*

* N/A = Contractor to perform

In the event that the utility facilities mentioned above are not removed or relocated by the date specified and, in the opinion of the Engineer, the Contractor's operations are delayed or interfered with by reason of the utility facilities not being removed or relocated by the date specified, the State will compensate the Contractor for the delays to the extent provided in Section 8-1.09, "Right of Way Delays," of the Standard Specifications, and not otherwise, except as provided in Section 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications.

The Contractor shall notify the following listed utility companies forty-eight (48) hours in advance of doing any work at the site of the project:

Underground Service Alert Phone: 811

El Dorado Irrigation District (EID)

Daryl Noel
(530) 642-4030
Fax (530) 642-1035
2890 Mosquito Road
Placerville, CA 95667

Pacific Gas and Electric Company (PG&E)

Jennifer Donovan
(530) 621-7228
Fax (530) 621-7258
4636 Missouri Flat Road
Placerville, CA 95667

AT&T

Carol Prince
(530) 888-2031
Fax (530) 823-6041
12824 Earhart Avenue
Auburn, CA 95602

Comcast

Kip Miller (AC Square)
(916) 376-7783
Fax (916) 376-7981
8188 Elder Creek Road
Sacramento, CA 95824

Full compensation for working around said facilities, performing any necessary potholing and coordination of facility relocation shall be considered as included in the prices paid for the various contract items of roadway and bridge work and no additional compensation will be allowed therefor.

5-1.25 COMPENSATION ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS

The provisions of this section shall apply only to the following contract item:

ITEM CODE	ITEM
390132	HOT MIX ASPHALT (TYPE A)

The compensation payable for hot mix asphalt, tack coat and asphalt treated permeable base will be increased or decreased in conformance with the provisions of this section for asphalt binder price fluctuations exceeding 5 percent (Iu/Ib is greater than 1.05 or less than 0.95) which occur during performance of the work.

The adjustment in compensation will be determined in conformance with the following formulae when the item of hot mix asphalt, tack coat, or asphalt treated permeable base is included in a monthly estimate:

- A. Total monthly adjustment = AQ
- B. For an increase in paving asphalt price index exceeding 5 percent:

$$A = 0.90 (Iu/Ib - 1.05) Ib$$

- C. For a decrease in paving asphalt price index exceeding 5 percent:

$$A = 0.90 (Iu/Ib - 0.95) Ib$$

- D. Where:

- A = Adjustment in dollars per ton of asphalt binder used to produce hot mix asphalt, asphaltic emulsion residue used as tack coat and asphalt treated permeable base rounded to the nearest \$0.01.
- Iu = The California Statewide Paving Asphalt Price Index which is in effect on the first business day of the month within the pay period in which the quantity subject to adjustment was included in the estimate.
- Ib = The California Statewide Paving Asphalt Price Index for the month in which the bid opening for the project occurred.
- Q = Quantity in tons of asphalt binder that was used in producing the quantity of hot mix asphalt shown under "This Estimate" on the monthly estimate using the amount of asphalt determined by the Engineer plus the quantity in tons of asphalt binder that would have been used in producing the quantity of asphalt treated permeable base shown under "This Estimate" on the monthly estimate using the amount of asphalt specified in the specifications plus the quantity in tons of asphalt binder that would have been used as residue in the tack coat shown under "This Estimate" on the monthly estimate.

The adjustment in compensation will also be subject to the following:

- A. The compensation adjustments provided herein will be shown separately on payment estimates. The Contractor shall be liable to the State for decreased compensation adjustments and the Department may deduct the amount thereof from any moneys due or that may become due the Contractor.
- B. Compensation adjustments made under this section will be taken into account in making adjustments in conformance with the provisions in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.
- C. In the event of an overrun of contract time, adjustment in compensation for asphalt binder included in estimates during the overrun period will be determined using the California Statewide Paving Asphalt Price Index in effect on the first business day of the month within the pay period in which the overrun began.

The California Statewide Paving Asphalt Price Index is determined each month on the first business day of the month by the Department using the median of posted prices in effect as posted by Chevron, ExxonMobil, and Union 76 for the Buena Vista, Huntington Beach, and Midway Sunset fields.

In the event that the companies discontinue posting their prices for a field, the Department will determine an index from the remaining posted prices. The Department reserves the right to include in the index determination the posted prices of additional fields.

The California Statewide Paving Asphalt Price Index is available on the Division of Engineering Services website at:

http://www.dot.ca.gov/hq/esc/oe/asphalt_index/astable.html

5-1.26 PUBLIC SAFETY

The Contractor shall provide for the safety of traffic and the public in conformance with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications and these special provisions.

The Contractor shall install temporary railing (Type K) between a lane open to public traffic and an excavation, obstacle or storage area when the following conditions exist:

- A. Excavations-The near edge of the excavation is 12 feet or less from the edge of the lane, except:
 - 1. Excavations covered with sheet steel or concrete covers of adequate thickness to prevent accidental entry by traffic or the public.
 - 2. Excavations less than one foot deep.
 - 3. Trenches less than one foot wide for irrigation pipe or electrical conduit, or excavations less than one foot in diameter.
 - 4. Excavations parallel to the lane for the purpose of pavement widening or reconstruction.
 - 5. Excavations in side slopes, where the slope is steeper than 4:1 (horizontal:vertical).
 - 6. Excavations protected by existing barrier or railing.
- B. Temporarily Unprotected Permanent Obstacles-The work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and the Contractor elects to install the obstacle prior to installing the protective system; or the Contractor, for the Contractor's convenience and with permission of the Engineer, removes a portion of an existing protective railing at an obstacle and does not replace such railing complete in place during the same day.
- C. Storage Areas-Material or equipment is stored within 12 feet of the lane and the storage is not otherwise prohibited by the provisions of the Standard Specifications and these special provisions.

The approach end of temporary railing (Type K), installed in conformance with the provisions in this section "Public Safety" and in Section 7-1.09, "Public Safety," of the Standard Specifications, shall be offset a minimum of 15 feet from the edge of the traffic lane open to public traffic. The temporary railing shall be installed on a skew toward the edge of the traffic lane of not more than one foot transversely to 10 feet longitudinally with respect to the edge of the traffic lane. If the 15-foot minimum offset cannot be achieved, the temporary railing shall be installed on the 10 to 1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules shall be installed at the approach end of the temporary railing.

Except for installing, maintaining and removing traffic control devices, whenever work is performed or equipment is operated in the following work areas, the Contractor shall close the adjacent traffic lane unless otherwise provided in the Standard Specifications and these special provisions:

Approach Speed of Public Traffic (Posted Limit) (Miles Per Hour)	Work Areas
Over 45	Within 6 feet of a traffic lane but not on a traffic lane
35 to 45	Within 3 feet of a traffic lane but not on a traffic lane

The lane closure provisions of this section shall not apply if the work area is protected by permanent or temporary railing or barrier.

When traffic cones or delineators are used to delineate a temporary edge of a traffic lane, the line of cones or delineators shall be considered to be the edge of the traffic lane, however, the Contractor shall not reduce the width of an existing lane to less than 10 feet without written approval from the Engineer.

When work is not in progress on a trench or other excavation that required closure of an adjacent lane, the traffic cones or portable delineators used for the lane closure shall be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators shall be not more than the spacing used for the lane closure.

Suspended loads or equipment shall not be moved nor positioned over public traffic or pedestrians.

Full compensation for conforming to the provisions in this section "Public Safety," excluding furnishing and installing temporary railing (Type K) and temporary crash cushion modules, shall be considered as included in the contract prices paid for the various items of roadway and bridge work involved and no additional compensation will be allowed therefor.

5-1.27 TESTING

Testing of materials and work shall conform to the provisions in Section 6-3, "Testing," of the Standard Specifications and these special provisions.

Whenever the provisions of Section 6-3.01, "General," of the Standard Specifications refer to tests or testing, it shall mean tests to assure the quality and to determine the acceptability of the materials and work.

The Engineer will deduct the costs for testing of materials and work found to be unacceptable, as determined by the tests performed by the Department, and the costs for testing of material sources identified by the Contractor which are not used for the work, from moneys due or to become due to the Contractor. The amount deducted will be determined by the Engineer.

5-1.28 REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES

Attention is directed to the Sections entitled "Air Pollution Control" and "Dust Control" elsewhere in these special provisions.

When the presence of asbestos or hazardous substances is not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos as defined in Section 25914.1 of the Health and Safety Code or a hazardous substance as defined in Section 25117 of the Health and Safety Code, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe. The Contractor shall immediately cease work in the affected area and report the condition to the Engineer in writing.

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

Any portions of the existing 6" asbestos concrete pipe (ACP) removed shall be properly disposed of in accordance with these special provisions.

If delay of work in the area delays the current controlling operation, the delay will be considered a right of way delay and the Contractor will be compensated for the delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

5-1.29 SOUND CONTROL REQUIREMENTS

Sound control shall conform to these special provisions, and Section 7-1.011 “Sound Control Requirements” shall not apply.

Sound Level Criteria

The maximum allowable noise exposure shall be as specified in the following tables for work within the community types and land use designations as follows:

The work is located in a Rural Region with Low-Density Residential.

MAXIMUM ALLOWABLE NOISE EXPOSURE FOR NONTRANSPORTATION NOISE SOURCES IN RURAL REGIONS—CONSTRUCTION NOISE			
Land Use Designation	Time Period	Noise Level (dB)	
		L_{eq}	L_{max}
All Residential (LDR)	7 pm–10 pm	45	55
	10 pm–7 am	40	50

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

As directed by the Engineer, the Contractor shall implement appropriate additional noise mitigation measures, including but not limited to changing the location of stationary construction equipment, shutting off idling equipment, rescheduling Contractor’s activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources such that noise from construction does not exceed the limits specified above. If the existing background noise levels exceed the values above, then the limit for construction noise may be increased from the background noise level by the same percentage that the background noise level exceeds the values above.

Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of roadway and bridge work involved and no additional compensation will be allowed therefore.

5-1.30 NIGHTTIME LIGHTING REQUIREMENTS

Nighttime operations

For the purposes of this contract nighttime operations are defined as between the hours of 7:00 p.m. and 7:00 a.m. during the detour closure period (Stage 2 Work) only. Nighttime work is prohibited at all other times unless approved by the Engineer.

If nighttime operations are proposed by the Contractor, the following requirements shall apply:

Lighting shall be directed only onto the immediate area under construction;

Floodlights on light towers shall be angled no more than 45 degrees;

Floodlights on light towers shall be raised not more than 6 m (20 feet) above grade when adjacent to a residence;

Light shields shall be used to reflect lighting towards the work areas and away from traffic and residences.

Full compensation for complying with the requirements contained in this section shall be considered included in the various contract items of roadway and bridge work and no separate compensation will be allowed therefor.

5-1.31 PROJECT APPEARANCE

The Contractor shall maintain a neat appearance to the work.

In areas visible to the public, the following shall apply:

A. When practicable, broken concrete and debris developed during clearing and grubbing shall be disposed of concurrently with its removal. If stockpiling is necessary, the material shall be removed or disposed of weekly.

B. Trash bins shall be furnished for debris from structure's construction. Debris shall be placed in trash bins daily. Forms or false work that are to be re-used shall be stacked neatly concurrently with their removal. Forms and false work that are not to be re-used shall be disposed of concurrently with their removal.

Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of roadway and bridge work involved and no additional compensation will be allowed therefor.

5-1.32 RELATIONS WITH CALIFORNIA DEPARTMENT OF FISH AND GAME

A portion of this project is located within the jurisdiction of the California Department of Fish and Game. An agreement regarding a stream or lake has been entered into by the Department of Transportation and the Department of Fish and Game. The Contractor shall be fully informed of the requirements of this agreement as well as rules, regulations, and conditions that may govern the Contractor's operations in these areas and shall conduct the work accordingly. The Contractor shall pay particular attention to items 3, 5, 6, 9, 11, 12, 13, and 14 of the agreement. If there are any conflicts between this agreement and these special provisions the more restrictive shall apply.

The Contractor shall notify the Engineer two weeks prior to beginning work within the stream zone of Tennessee Creek.

A copy of the Streambed Alteration Agreement is included in Appendix F of the contract documents.

The Contractor shall sign the Department's copy of the streambed alteration agreement in acceptance of the terms and conditions required the Contractor shall follow.

It is unlawful for any person to divert, obstruct or change the natural flow of the bed, channel or bank of a stream, river or lake without first notifying the Department of Fish and Game, unless the project or activity is noticed and constructed in conformance with conditions imposed under Fish and Game Code Section 1602.

Attention is directed to Sections 7-1.01, "Laws to be Observed," 7-1.01G, "Water Pollution," and 7-1.12, "Indemnification and Insurance," of the Standard Specifications.

The provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

Full compensation for conforming to the requirements of this section, not otherwise provided for, shall be considered as included in the contract prices paid for the various items of roadway and bridge work involved and no additional compensation will be allowed therefor.

5-1.33 BIRD PROTECTION

GENERAL

This work includes protecting migratory and nongame birds, their occupied nests, and their eggs.

REGULATORY REQUIREMENTS

The Federal Migratory Bird Treaty Act (16 USC §703-711.), 50 CFR 10, and Fish & Game Code §3503, §3513, and §3800, protect migratory and nongame birds, their occupied nests, and their eggs.

The Federal Endangered Species Act of 1973 (16 USC §1531, §1543) and California Endangered Species Act (Fish & Game Code §2050-§2115.5) prohibit the take of listed species and protect occupied and unoccupied nests of threatened and endangered bird species.

The Bald and Golden Eagle Protection Act (16 USC §668) prohibits the destruction of bald and golden eagles and their occupied and unoccupied nests.

PRECONSTRUCTION SURVEYS

When construction work shall begin during the nesting season (March 1 through August 31), all suitable nesting habitat within 250 feet of the limits of work will be surveyed by the County's biologist no more than 14 days prior to start of construction. If no active nests are found, then no additional avoidance and minimization measures will be necessary, and construction may proceed as planned.

If an active nest is discovered within 250 feet of a construction area, a 250 foot buffer shall be established by the County's biologist around the nest tree and delineated by the Contractor using temporary fence (Type ESA), and the County's biologist will record the location on a site map. The buffer shall be maintained in place until the end of the breeding season or until the all eggs have hatched and the young birds have fledged, as determined by the County's biologist. No construction activities shall occur within 250 ft of a nest tree while the young are in the nest. The County's biologist will monitor the nest weekly during construction to evaluate potential disturbance caused by construction activities.

Construction work beginning during the non-nesting season, and continuing into the nesting season shall not be subject to these measures.

SWALLOW NESTING PREVENTION

The Contractor shall install exclusion netting, or equivalent material, on the underside of the existing bridge to prevent swallows or other birds from nesting on the bridge prior to the start of the nesting swallow season, March 1. Exclusion structures shall be left in place until the existing bridge is removed, or August 31, whichever is earlier. Exclusion structures may also be necessary on the new bridge, prior to the start of demolition of the existing bridge, if swallows attempt to nest on the new bridge.

The underside of the existing bridge shall be surveyed by the County's biologist prior to the installation of the exclusion netting.

MEASUREMENT AND PAYMENT

The cost for conforming to all the provisions in this section, including exclusion netting, nesting prevention measures, nest removal, and protection measures including the establishment of a 250 foot buffer around active nests and installation of temporary fence (Type ESA), as ordered by the Engineer, will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

A delay to the controlling operation due to migratory or nongame birds or their nests will be considered a temporary suspension of work under Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications. Adjustments will be made for delays that the Engineer determines are not due to the Contractor's failure to perform the provision of the contract in the same manner as for suspensions due to unsuitable weather in Section 8-1.05.

5-1.34 RELATIONS WITH CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

This project lies within the boundaries of the Central Valley (Sacramento) Regional Water Quality Control Board (RWQCB).

The State Water Resources Control Board (SWRCB) has issued to the Department a permit that governs storm water and non-storm water discharges from the Department's properties, facilities, and activities. The Department's permit is entitled "Order No. 99 - 06 - DWQ, NPDES No. CAS000003, National Pollutant Discharge Elimination System (NPDES) Permit, Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation (Caltrans)." Copies of the Department's permit are available for review from the SWRCB, Division of Water Quality, 1001 "I" Street, P.O. Box 100, Sacramento, California 95812-0100, Telephone fax: (916) 341-5463 and may also be obtained at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/caltrans.shtml

This project is subject to the current statewide general permit issued by the SWRCB entitled "Order No. 2009-0009-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities" that regulates discharges of storm water and non-storm water from construction or demolition activities, including, but not limited to clearing, grading, grubbing, or excavation, or any other activity that results in land disturbance of equal to or greater than one acre. Copies of the statewide permit and modifications thereto are available for review from the SWRCB, Division of Water Quality, 1001 "I" Street, P.O. Box 100, Sacramento, California 95812-0100, Telephone fax: (916) 341-5463 and may also be obtained at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/

The Central Valley RWQCB has issued a permit which governs storm water and non-storm water discharges resulting from construction activities in the project area. The RWQCB permit is entitled "National Pollutant Discharge Elimination System (NPDES) Permit WDID 5S09C356960. A copy of this NPDES permit is included in Appendix F of the contract documents.

The Central Valley RWQCB has issued a Section 401 permit which governs discharge of dredged and/or fill materials into waters of the United States. The RWQCB permit is entitled "Clean Water Act Section 401 Technically Conditioned Water Quality Certification and Waste Discharge Requirements for Discharge of Dredged and/or Fill Materials; Green Valley Road Bridge (25C-0038) Replacement Project", WDID #5A09CR00102. A copy of this Section 401 permit is included in Appendix F of the contract documents.

The NPDES permit that regulates this project, as referenced above, is referred to in this section as the "permit."

The Contractor shall notify the Engineer two weeks prior to beginning work within the stream zone of Tennessee Creek.

Except as permitted, no organic material shall be placed in surface waters or surface water drainage courses.

This project shall conform to the permit and modifications thereto. The Contractor shall maintain a copy of the permit at the project site and shall make them available during construction.

The Contractor shall know and comply with provisions of Federal, State, and local regulations and requirements that govern the Contractor's operations and storm water and non-storm water discharges from the project site and areas of disturbance outside the project limits during construction. Attention is directed to Sections 7-1.01, "Laws to be Observed," 7-1.11, " Preservation of Property," 7-1.12, "Indemnification and Insurance", 8-1.10 "Utility and Non-Highway Facilities," and 9-1.055 "Penalty Withholds," of the Standard Specifications.

The Contractor shall notify the Engineer immediately upon request from the regulatory agencies to enter, inspect, sample, monitor, or otherwise access the project site or the Contractor's records pertaining to water pollution control work. The Contractor and the Department shall provide copies of correspondence, notices of violation, enforcement actions, or proposed fines by regulatory agencies to the requesting regulatory agency.

5-1.35 RELATIONS WITH ARMY CORPS OF ENGINEERS

A portion of this project is located within the jurisdiction of the United States Army Corps of Engineers (USACE). The bridge replacement is a linear transportation project that is authorized under USACE Nationwide Permit 14. It has been determined that a pre-construction notification submittal is not required, as the project will result in a loss of waters of the United States less than 1/10 acre. The Contractor shall fully inform himself of the requirements of this permit as well as all rules, regulations, and conditions that may govern his operations in said area and shall conduct his operations accordingly.

A copy of the USACE Nationwide Permit 14 is included in Appendix F of the contract documents.

Attention is directed to Sections 7-1.01, "Laws to be Observed," 7-1.01G, "Water Pollution," and 7-1.12, "Indemnification and Insurance," of the Standard Specifications and "Temporary Creek Diversion System" of these special provisions.

The provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

Full compensation for conforming to the provisions in this section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of roadway and bridge work involved and no additional compensation will be allowed therefor.

5-1.36 STORAGE OF MATERIALS

Attention is directed to the provisions of Section 6-1.03, "Storage of Materials," of the Standard Specifications and these special provisions.

The Contractor shall not store any materials, equipment, supplies, or the like in "environmentally sensitive" areas as shown on the plans or as determined by the Engineer.

Materials shall be stored so as to ensure the preservation of their quality and fitness for the work. When considered necessary by the Engineer, they shall be placed on wooden platforms or other hard, clean surfaces, and not directly on the ground, and/or they shall be placed under cover. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the owner or lessee. The Contractor shall be responsible for appropriate security of the storage area to protect property and persons.

5-1.37 RESPONSIBILITY TO OTHER ENTITIES

The Contractor shall be responsible for any liability imposed by law and for injuries to or death of any person including, but not limited to, workers and the public or damage to property, and shall indemnify and save harmless any county, city or district, its officers and employees connected with the work, within the limits of which county, city or district the work is being performed, all in the same manner and to the same extent conforming to the provisions in Section 7-1.12, "Indemnification and Insurance," of the Standard Specifications, and Article 5 of the Agreement, for the protection of the State of California and all officers and employees thereof connected with the work.

5-1.38 CONTRACTOR'S RESPONSIBILITY FOR MATERIALS

The Contractor shall be responsible for the condition of all materials, which it has furnished, and shall replace at its own expense all such material found to be defective or which has been damaged after delivery. This includes the replacement of material which is found to be defective at any time prior to expiration of the guarantee period.

5-1.39 PRESERVATION OF PROPERTY

Attention is directed to Section 7-1.11, "Preservation of Property," of the Standard Specifications and these special provisions.

Unless noted otherwise on the plans, all existing trees are to remain in place and shall not be damaged or removed. Trees, shrubs and other plants, that are not to be removed as shown on the plans or specified in these special provisions, and are injured or damaged by reason of the Contractor's operations, shall be replaced by the Contractor at his expense. The minimum size of tree replacement shall be 24 inch box and the minimum size of shrub replacement shall be 15-gallon. Replacement ground cover plants shall be from flats and shall be planted 12 inches on center. Replacement planting shall conform to the requirements in Section 20-4.07, "Replacement," of the Standard Specifications. The Contractor shall water replacement plants in conformance with the provisions in Section 20-4.06, "Watering," of the Standard Specifications.

Damaged or injured plants shall be removed and disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications. At the option of the Contractor, removed trees and shrubs may be reduced to chips. The chipped material shall be spread within the highway right of way at locations designated by the Engineer.

Replacement planting of injured or damaged trees, shrubs and other plants shall be completed not less than 20 working days prior to acceptance of the contract. Replacement plants shall be watered as necessary to maintain the plants in a healthy condition.

5-1.40 SUPPLEMENTAL PROJECT INFORMATION

Supplemental project information attached to the project plans are:

1. Log of Test Borings.

Permits included in Appendix F of the contract documents are:

1. California Department of Fish and Game Streambed Alteration Agreement.
2. U.S. Army Corp of Engineers Nationwide Permit.
3. California Regional Water Quality Control Board, Central Valley Region Section 401 Water Quality Certification and NPDES Section 402 Compliance.
4. Caltrans Encroachment Permit.

Supplemental project information included in the Information Handout are:

1. Foundation Investigation, Green Valley Road at Tennessee Creek Bridge, prepared by: Taber Consultants, dated December 19, 2008, including addenda.
2. Hydraulic Study, Tennessee Creek, prepared by: Keith Nelson, TRC Imbsen, dated May 2006.
3. Waterline Pothole Data.

Supplemental project information available from the County are:

1. Cross Sections.

5-1.41 ENVIRONMENTALLY SENSITIVE AREA

An environmentally sensitive area (ESA) shall consist of an area within and near the limits of construction where access is prohibited or limited for the preservation of archeological site or existing vegetation, or protection of biological

habitat as shown on the plans. The Engineer will determine the exact location of the boundaries of the ESA. No work shall be conducted within the ESA.

Attention is directed to Section 7-1.01 "Laws to be Observed," and Section 7-1.04 "Permits and Licenses," of the Standard Specifications regarding State and Federal regulations, permits, or agreements which pertain to an ESA.

Prior to beginning work, the boundaries of the ESA shall be clearly delineated by the placement of temporary fence (Type ESA).

The Contractor's attention is directed to the areas designated "Environmentally Sensitive Areas" and to State and Federal regulations that may pertain to such areas. These areas are protected and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the County.

The Contractor shall give his employees and subcontractors written notice to ensure that all forces are aware that vehicle access, storage or transport of materials or equipment, or other project related activities are prohibited within the boundaries of ESA unless the Contractor receives written approval from the Engineer.

The Contractor shall mitigate damage or impacts to the ESA caused by the Contractor's operations, at the Contractor's expense. If the Engineer determines mitigation work will be performed by others, or if mitigation fees are assessed the Department, deductions from moneys due or to become due the Contractor will be made for the mitigation costs.

The County will conduct an initial environmental awareness training for construction crews prior to project commencement. The education program will include a brief review of the environmental permits and special-status species that could potentially occur in the project areas (including their life history, habitat requirements, and pictures of the species), since a portion of the project is in an area in which they may occur. The Contractor will be responsible for ensuring that crew members adhere to the guidelines and restrictions. The Contractor shall provide all personnel new to the project with the awareness training information as they are brought on the job during the construction period. Restrictions and guidelines that must be followed by construction personnel are as follows:

1. Project-related vehicles will observe the posted speed limit on hard-surfaced road and 10 miles per hour speed limit on unpaved road during travel in the project area.
2. Project-related vehicles and construction equipment will restrict off-road travel to the designated construction area.
3. Night time construction adjacent to Tennessee Creek will be prohibited, unless determined necessary by the Engineer, or specifically permitted in these special provisions.
4. All food-related trash will be disposed of in closed containers and removed from the project area at least once a week during the construction period. Construction personnel will not feed or otherwise attract wildlife to the project areas.
5. No pets or firearms will be allowed in the project area.
6. No rodenticides or herbicides will be applied in the project area during construction activities.
7. To prevent possible resource damage from hazardous materials such as motor oil or gasoline, construction personnel will not service vehicles or construction equipment outside of designated areas.
8. Any worker who inadvertently injures or kills a special-status species or finds one dead, injured, or entrapped, will immediately report the incident to the biological monitor. The monitor will immediately notify the County, who will provide verbal notification to the United States Fish and Wildlife Service (USFWS) Endangered Species Office in Sacramento, California, and to the local Department of Fish and Game (DFG) warden or biologist within 3 working days. The County will follow up with written notification to USFWS and DFG within 5 working days.

The cost of attendance at the initial environmental awareness training, subsequent training of new employees entering the job after the initial environmental awareness training, cooperation with County and County staff performing environmental monitoring, compliance with restrictions and guidelines listed in this section, and in all project conditions, permits and agreements, not otherwise paid for under separate provision, shall be considered as included in various items of roadway and bridge work and no additional compensation shall be made therefor.

Contractor shall notify the County four working days prior to the start of any construction activity within the riparian and aquatic habitat of Tennessee Creek so the County can arrange to have its Biological Monitor conduct a

preconstruction survey of the Biological Study Area (BSA) for the California Red-Legged Frog (CRLF) and Northwestern Pond Turtle (NWPT). The County's Biological Monitor will be on-site during clearing and grubbing activities in the riparian corridor to ensure that no CRLF or NWPT is present. In the event that a CRLF is observed during construction activities within the creek, activities will cease and the County will contact the Biological Monitor. Construction activities will not resume until the frog leaves the project site and an exclusionary fencing is installed by the Contractor to prevent the movement of the frog back into the construction area. If an NWPT is observed in the construction area, construction shall stop within one hundred (100) feet of the animal and shall not resume until the Biological Monitor determines that the NWPT has left the construction zone. If delays occur for these reasons, the delays shall be considered Right-of-Way delays and addressed accordingly.

The cost for implementing all required protection measures described herein, in the event that a CRLF or NWPT is observed in the construction area, including furnishing and installing exclusionary fencing, as directed by the Engineer, will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

5-1.42 STATE OF CALIFORNIA ENCROACHMENT PERMIT

Portions of this project are located within the jurisdiction of the State of California (PCMS signs on US 50, as shown on Sheet DE-1 of the plans). El Dorado County has obtained an Encroachment Permit from Caltrans, a copy of which is included in Appendix F of the contract documents. Prior to the start of work within the State of California's right-of-way or work affecting the State of California facilities, the Contractor will be required obtain an Encroachment Permit at the following State of California Transportation office:

CALTRANS, DISTRICT 3
PERMIT ENGINEER
P.O. Box 911
Marysville, CA 95901
(530) 741-4403

No fee will apply.

Full compensation for conforming to the provisions in this section and the requirements in the permit, shall be considered as included in the contract prices paid for the various items of roadway and bridge work and no additional compensation will be allowed therefor.

Attention is directed to 7-1.02 of the Special Provisions which requires evidence of insurance coverage, in accordance with the Special Provisions, provided to Caltrans prior to the issuance of an Encroachment Permit.

5-1.43 UTILITIES REQUIRED BY CONTRACTOR

All water, electric current, telephone, or other utility service, including portable sanitary facilities, required by the Contractor during construction shall be furnished at Contractor's own expense.

5-1.44 FINAL INSPECTION AND ACCEPTANCE OF THE CONTRACT

Section 7-1.17, "Acceptance of Contract" of the Standard Specifications is amended to read:

When the Engineer has made the final inspection and determines that the contract work, other than the work associated with outstanding plant establishment work, has been completed in all respects in accordance with the plans and specifications, the Engineer will recommend to the Board of Supervisors that the contract be accepted and the Notice of Acceptance be recorded to accept the contract, and immediately upon and after the acceptance by the Board of Supervisors, notwithstanding Section 7-1.15 "Relief From Maintenance and Responsibility" of the Standard Specifications, the Contractor will be relieved of the duty of maintaining and protecting the work as a whole, and the Contractor will not be required to perform any further work thereon except work required under "Guarantee," of these Special Provisions; and the Contractor shall be relieved of the responsibility for injury to persons or property or damage to the work which occurs after the formal acceptance by the Board of Supervisors.

5-1.45 ACCESS FOR INSPECTION OF WORK

Representatives of the County, the State of California, FHWA, El Dorado Irrigation District, US Army Corps of Engineers, California Department of Fish and Game, USFWS, California Regional Water Quality Control Board – Central Valley Region, Pacific Gas and Electric, AT&T, and Comcast shall at all times have full access for inspection and testing of the work accomplished under this contract and the Contractor shall provide proper and safe facilities for such access.

5-1.46 AREAS FOR CONTRACTOR'S USE

Attention is directed to the provisions in Section 7-1.19, "Rights in Land and Improvements," of the Standard Specifications and these special provisions.

The County right of way shall be used only for purposes that are necessary to perform the required work. The Contractor shall not occupy the right of way, or allow others to occupy the right of way, for purposes which are not necessary to perform the required work.

No area is available within the contract limits for the exclusive use of the Contractor. Use of the Contractor's work areas shall be at the Contractor's own risk, and the County shall not be held liable for damage to or loss of materials or equipment located within such areas.

The Contractor shall remove equipment, materials, and rubbish from the work areas and other County-owned property which the Contractor occupies. The contractor shall not dump any litter or construction debris within the stream zone. The Contractor shall leave the areas in a presentable condition in conformance with the provisions in Section 4-1.02, "Final Cleaning Up," of the Standard Specifications.

The Contractor shall secure, at the Contractor's own expense, areas required for plant sites, storage of equipment or materials or for other purposes, if sufficient area is not available to the Contractor within the contract limits, or at the sites designated on the plans outside the contract limits.

The roads within the Sleepy Hollow Subdivision, including Oakvale Drive and Sleepy Hollow Drive, are privately-maintained roads and are not to be used by the Contractor for staging or turning, unless written authorization is provided by the Sleepy Hollow HOA Board of Directors.

Before the Contractor makes use of any property owner's land where the Department has not made previous arrangements with the owner for the use of said land, the Contractor shall supply to the County a fully executed "Release from Liability" form. The "Release from Liability" form shall be a Department supplied form, available upon request.

5-1.47 COORDINATION WITH PROPERTY OWNERS

The County has entered into agreement with adjacent property owners for access and construction shown on the project plans and as indicated in these special provisions.

The Contractor shall communicate with adjacent property owners and tenants on North Shingle, Green Valley, and Peaceful Garden Roads to all extent possible to inform them of access construction operations, and shall give forty-eight (48) hours notice to the property owners when work is to be performed on their property.

All residential driveway encroachments shall not be left un-paved or non-hard surfaced for more than five (5) consecutive calendar days at any time. If residential driveway encroachment pavements are removed, they shall be paved back within five (5) consecutive calendar days. Residential driveway encroachments that are unpaved and under construction shall be maintained for safe ingress and egress, graded smooth, and compacted firmly for a uniform driving surface. Contractor shall be responsible to maintain the encroachments during their construction.

The conditions of the agreements and permits with adjacent property owners are included below in these special provisions.

Attention is directed to the following parcel-specific conditions of the agreements that shall be met by the Contractor:

1. **APN 069-241-15:** Contractor shall replace the existing white 3-rail wooden fencing with vinyl white 3-rail fence, with new wire mesh coverage for small animals, as shown on the plans. The wire mesh material shall conform to Section 80-3.01D, and be sufficiently fastened to the lower portion of the vinyl 3-rail fence, per the direction of the Engineer. The new 3-rail fence shall be electrified using 3-ribbon electric tape. The existing field fence shall be replaced with Type WM fence, as shown on the plans. The new Type WM fence shall also be electrified using 3-ribbon electric tape. The Contractor shall only install the same quantity of electric tape to the new Type WM fence that exists along the existing field fence segments being removed. The Contractor may use the existing 3-ribbon electric tape, if it is salvageable. Prior to construction, the Contractor shall furnish and install temporary Type WM fence as indicated on the plans and directed by the Engineer.
The Contractor shall also replace two existing galvanized steel gates (one 8-foot and one 12-foot) with new 5-slat galvanized steel gates, measuring 48" in height, with 5" wide slats, where shown on the plans. Each of the new gates shall include a 22" snap chain. The Contractor shall coordinate with the property owner the exact location of the hinge post and direction of swing for each of the new gates.
The Contractor shall also furnish, place, and rough grade 600 cubic yards of fill dirt within the property limits (at approximately GVR-1 Sta. 25+50, 90' RT), as directed by the Engineer. The fill dirt shall be 6" minus gradation, track-walked, and graded to drain. The Contractor shall apply Erosion Control (Type D) seed to the area of fill dirt.
2. **APN 069-340-01:** Before mobilizing equipment on property, Contractor shall steam clean the equipment and provide the Engineer a receipt for star thistle control when performing work on the property, so as to prevent the spread of star thistle on this property. Upon completion of the project, Contractor shall return easement areas to their original, natural condition as they were prior to the commencement of the project.
3. **APN 069-101-86:** The Contractor shall pothole as necessary to verify the exact location of the septic system and leach field located on this property. In the event that existing septic leach lines are uncovered or disturbed during roadway excavation or other construction activities, the uncovered or disturbed portions of leach lines will be replaced at the Contractor's expense.
The Contractor will replace any portions of existing fence on the property that becomes damaged as a result of construction with like-kind fence materials at Contractor's expense.
In addition, four (4) five-gallon native oak trees shall be planted within the property limits at a location mutually determined by the Engineer and the property owner. Once planted, these trees will immediately become the full responsibility of the property owner to water and maintain. Temporary fencing (Type ESA) shall be installed at the locations shown on the Plans, and all trees and landscaping existing beyond shall be protected in place.
4. **APN 069-101-31:** Portions of existing landscaping and/or irrigation system components outside of the project footprint (rock-lined ditch at toe of fill) that become damaged during construction shall be replaced with like-kind materials at Contractor's expense. Temporary fencing (Type ESA) shall be installed at the locations shown on the Plans, and all trees and landscaping existing beyond shall be protected in place. The temporary fence (Type ESA) shall be installed to provide privacy for the residents along the east side of the house.
5. **APN 069-241-14:** Work on this property is to include removal of existing fence (wood picket and Type BW, where occurs); relocating the mailbox and paperbox for both residences; removal and disconnection of an existing electric gate system; cutting and capping existing irrigation lines at or near the existing valve box location; removal of all irrigation materials (beyond capped portion); constructing a new driveway; and, removing and disposing of the existing concrete driveway after the new driveway is complete. Temporary fencing (Type ESA) shall be installed at the locations shown on the Plans, and all trees and landscaping existing beyond shall be protected in place.
6. **APN 069-340-02:** Contractor shall replace existing Type BW fence, as shown on plans, so that the new fence is located approximately 5-feet from the top of cut, where occurs. The exact location of the fence, relative to the top of cut slope and utility pole locations, shall be as directed by the Engineer.

7. **APN 069-101-28:** Contractor shall replace existing Type BW fence, as shown on plans, and as directed by the Engineer.
8. **APN 069-101-81:** Contractor shall replace existing Type BW fence, as shown on plans, so that the new fence is located approximately 5-feet from the top of cut, where occurs. The exact location of the fence, relative to the top of cut slope shall be as directed by the Engineer.

The Temporary Construction Easements (TCEs) on APNs 069-101-28, 069-101-31, 069-101-60, 069-101-81, 069-101-86, 069-241-14, 069-241-15, and 069-340-01 secured by the County allow the County or its agents, employees, and contractors the right of ingress and egress as may be reasonably necessary for construction purposes, inclusive of repairs, replacements, and removals as may be from time to time be required as well as for other purposes incidental to construction of the project, including any staging, stockpiling, and parking of construction vehicles or equipment.

The Contractor shall keep work areas on private property neat and orderly and remove all trash and debris completely when the work is finished. All areas on private property disturbed during construction operations shall be restored to match their original condition at the end of the project.

The Contractor shall provide written notification to all the residents on Peaceful Garden Way 1-week prior to closure of the entrance, as required to complete the Stage 3 work. The Contractor shall clarify to the residents that the western entrance of Peaceful Garden Road at Green Valley Road shall remain open at all times.

The Contractor shall be responsible for protecting or replacing any facilities adjacent to County right-of-way, Temporary Construction Easement areas and adjacent properties affected by the work unless otherwise specified in the contract documents or by the Engineer. Where not specified for payment elsewhere, full compensation for conforming to all requirements and conditions listed in this section will be considered as included in the contract lump sum price paid for coordination with property owners and no additional compensation will be allowed therefor.

5-1.48 SAFETY AND HEALTH PROVISIONS

Attention is directed to the Standard Specifications Section 7-1.06 and these special provisions.

In addition to other specifications, definitions and provisions, the Contractor is also hereby categorized and designated as the following types of employer for this project:

- **Exposing Employer** – the employer whose employees are exposed to a hazard
- **Creating Employer** – the employer who actually is creating a hazard
- **Controlling Employer** – the employer who is responsible and who has the authority for ensuring that a hazardous condition is corrected
- **Correcting Employer** - the employer who has the responsibility for actually correcting a hazard

The Contractor's Safety Officer(s) shall be certified as a competent person for controlling this project's workplace safety. A Contractor's Safety Officer shall be on the site, at a minimum, each and every day that work is in progress or periodically when work is not active and shall have the authority to correct any safety violation. In addition, the Contractor is required to develop a Safety Program specifically for this project, which will be available on site, at all times, and updated periodically during the project.

5-1.49 ARCHAEOLOGICAL DISCOVERIES

If subsurface archaeological or historical materials remains (including, but not limited to, unusual amounts of bones, stones or shells) are discovered during excavation or construction at the site, protect and leave undisturbed and in place archaeological materials in accordance with the following codes and these special provisions:

1. California Public Resources Code, Division 5, Chapter 1.7 § 5097.5
2. California Public Resources Code, Division 5, Chapter 1.75 § 5097.98 and § 5097.99
3. California Administrative Code, Title 14 § 4308

4. California Penal Code, Part 1, Title 14 § 622-1/2
5. California Health and Safety Code, Division 7, Part 1, Chapter 2, § 7050.5

Archaeological materials are the physical remains of past human activity and include historic-period archaeological materials and prehistoric Native American archaeological materials. Nonhuman fossils are not considered to be archaeological except when showing direct evidence of human use or alteration or when found in direct physical association with archaeological materials as described in these special provisions.

Historic-period archaeological materials include cultural remains beginning with initial European contact in California, but at least 50 years old. Historical archaeological materials include:

1. Trash deposits or clearly defined disposal pits containing tin cans, bottles, ceramic dishes, or other refuse indicating previous occupation or use of the site
2. Structural remains of stone, brick, concrete, wood, or other building material found above or below ground or
3. Human skeletal remains from the historic period, with or without coffins or caskets, including any associated grave goods

Prehistoric Native American archaeological materials include:

1. Human skeletal remains or associated burial goods such as beads or ornaments
2. Evidence of tool making or hunting such as arrowheads and associated chipping debris of fine-grained materials such as obsidian, chert, or basalt
3. Evidence of plant processing such as pestles, grinding slabs, or stone bowls
4. Evidence of habitation such as cooking pits, stone hearths, packed or burnt earth floors or
5. Remains from food processing such as concentrations of discarded or burnt animal bone, shellfish remains, or burnt rocks used in cooking

Immediately upon discovery of archaeological materials, stop all work within a 100-foot radius of the archaeological materials and immediately notify the Engineer. Archaeological materials found during construction are the property of the State. The Engineer will make arrangements for a qualified archeologist and a representative from the Native American Heritage Commission to determine the significance of the find and develop a plan with specific measures to protect the find in a manner commensurate with the significance of the find. The plan shall be implemented before construction continues within 100 feet of the discovery. If, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of an archeological find or investigation or recovery of archeological materials, you will be compensated for resulting losses and an extension of time will be granted in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The Department may use other forces to investigate and recover archaeological materials from the location of the find. When ordered by the Engineer furnish labor, material, tools and equipment, to secure the location of the find, and assist in the investigation or recovery of archaeological materials and the cost will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

SECTION 6. (BLANK)

SECTION 7. CONTRACTOR'S INSURANCE

7-1.01 GENERAL INSURANCE REQUIREMENTS

The Contractor shall provide proof of a policy of insurance satisfactory to the El Dorado County Risk Management Division and documentation evidencing that the Contractor maintains insurance that meets the following requirements:

1. Full Workers' Compensation and Employers' Liability Insurance covering all employees of the Contractor as required by law in the State of California.
2. Commercial General Liability Insurance of not less than Two Million Dollars (\$2,000,000) combined single limit per occurrence for bodily injury and property damage, including but not limited to endorsements for the following coverage: Premises, personal injury, operations, products and completed operations, blanket contractual, and

independent contractors liability. This insurance can consist of a minimum \$1 Million primary layer of CGL and the balance as an excess/umbrella layer, but only if the County is provided with written confirmation that the excess/umbrella layer "follows the form" of the CGL policy.

3. Automobile Liability Insurance of not less than One Million Dollars (\$1,000,000) is required in the event motor vehicles are used by the Contractor in performance of the contract.
4. In the event Contractor is a licensed professional and is performing professional services under this contract, Professional Liability Insurance is required with a limit of liability of not less than One Million Dollars (\$1,000,000).
5. Explosion, Collapse and Underground coverage is required when the scope of work includes XCU exposures. For the purpose of this contract, XCU coverage is required.

7-1.02 PROOF OF INSURANCE REQUIREMENTS

1. Contractor shall furnish proof of coverage satisfactory to the El Dorado County Risk Management Division as evidence that the insurance required herein is being maintained. The insurance will be issued by an insurance company acceptable to the Risk Management Division, or be provided through partial or total self-insurance likewise acceptable to the Risk Management Division.
2. The County of El Dorado, its officers, officials, employees, and volunteers shall be included as additional insureds, but only insofar as the operations under this Contract are concerned. This provision shall apply to all general liability and excess liability policies. Proof that the County is named additional insured shall be made by providing the Risk Management Division with a certified copy, or other acceptable evidence, of an endorsement to Contractor's insurance policy naming the County additional insured.
3. In the event Contractor cannot provide an occurrence policy, Contractor shall provide insurance covering claims made as a result of performance of this contract for not less than three (3) years following completion of performance of this Contract.
4. Any deductibles or self-insured retentions must be declared to and approved by the County. At the option of the County, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the County, its officers, officials, employees and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.
5. Contractor shall require each of its subcontractors to procure and maintain commercial general liability insurance, automobile liability insurance, and workers compensation insurance of the types and in the amounts specified above, or shall insure the activities of its subcontractors in its own policy in like amounts. Contractor shall also require each of its subcontractors to name Contractor and County of El Dorado as additional insureds.

7-1.03 INSURANCE NOTIFICATION REQUIREMENTS

1. Contractor agrees no cancellation or material change in any policy shall become effective except upon thirty (30) days prior written notice to the County of El Dorado Contract Services Unit, Tim Prudhel at the office of the Department of Transportation, 2850 Fairlane Court, Placerville.
2. Contractor agrees that the insurance required herein shall be in effect at all times during the term of this agreement. In the event said insurance coverage expires at any time or times during the term of this Contract, Contractor shall immediately provide a new certificate of insurance as evidence of the required insurance coverage. In the event Contractor fails to keep in effect at all times insurance coverage as herein provided, County may, in addition to any other remedies it may have, terminate this Contract upon the occurrence of such event. New certificates of insurance are subject to the approval of the Risk Management Division.

7-1.04 ADDITIONAL STANDARDS

Certificates shall meet such additional standards as may be determined by the Department either independently or in consultation with the Risk Management Division, as essential for protection of the County.

7-1.05 COMMENCEMENT OF PERFORMANCE

Contractor shall not commence performance of this Contract unless and until compliance with each and every requirement of the insurance provisions is achieved.

7-1.06 MATERIAL BREACH

Failure of Contractor to maintain the insurance required herein, or to comply with any of the requirements of the insurance provisions, shall constitute a material breach of the entire Contract.

7-1.07 REPORTING PROVISIONS

Any failure to comply with the reporting provisions of the policies shall not affect coverage provided to the County, its officers, officials, employees or volunteers.

7-1.08 PRIMARY COVERAGE

The Contractor's insurance coverage shall be primary insurance as respects the County, its officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the County, its officers, officials, employees or volunteers shall be in excess of the Contractor's insurance and shall not contribute with it.

7-1.09 PREMIUM PAYMENTS

The insurance companies shall have no recourse against the County of El Dorado its officers, agents, employees, or any of them for payment of any premiums or assessments under any policy issued by any insurance company.

7-1.10 CONTRACTOR'S OBLIGATIONS

Contractor's indemnity and other obligations shall not be limited by the insurance required herein and shall survive the expiration of this Contract.

7-1.11 GOVERNING PRECEDENCE

To the extent that this Section 7, "Contractor's Insurance," is inconsistent with 7-1.12, "Indemnification and Insurance," of the Standard Specifications May 2006, this Section shall govern; otherwise each and every provision of such Section 7-1.12 shall be applicable to this agreement.

SECTION 8. MATERIALS

SECTION 8-1. MISCELLANEOUS

8-1.01 CERTIFICATES OF COMPLIANCE

All required Certificate of Compliances shall be submitted as required in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

8-1.02 PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS

The Department maintains the following list of Prequalified and Tested Signing and Delineation Materials. The Engineer shall not be precluded from sampling and testing products on the list of Prequalified and Tested Signing and Delineation Materials.

The manufacturer of products on the list of Prequalified and Tested Signing and Delineation Materials shall furnish the Engineer a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each type of traffic product supplied.

For those categories of materials included on the list of Prequalified and Tested Signing and Delineation Materials, only those products shown within the listing may be used in the work. Other categories of products, not included on the list of Prequalified and Tested Signing and Delineation Materials, may be used in the work provided they conform to the requirements of the Standard Specifications.

Materials and products may be added to the list of Prequalified and Tested Signing and Delineation Materials if the manufacturer submits a New Product Information Form to the New Product Coordinator at the Transportation Laboratory. Upon a Departmental request for samples, sufficient samples shall be submitted to permit performance of required tests. Approval of materials or products will depend upon compliance with the specifications and tests the Department may elect to perform.

PAVEMENT MARKERS, PERMANENT TYPE

Retroreflective With Abrasion Resistant Surface (ARS)

1. Apex, Model 921AR (4" x 4")
2. Ennis Paint, Models C88 (4" x 4"), 911 (4" x 4") and 953 (2.75" x 4.5")
3. Ray-O-Lite, Model "AA" ARS (4" x 4")
4. 3M Series 290 (3.5" x 4")
5. 3M Series 290 PSA, with pressure sensitive adhesive pad (3.5" x 4")

Retroreflective With Abrasion Resistant Surface (ARS)

(for recessed applications only)

1. Ennis Paint, Model 948 (2.3" x 4.7")
 2. Ennis Paint, Model 944SB (2" x 4")*
 3. Ray-O-Lite, Model 2002 (2" x 4.6")
 4. Ray-O-Lite, Model 2004 ARS (2" x 4")*
- *For use only in 4.5 inch wide (older) recessed slots

Non-Reflective, 4-inch Round

1. Apex Universal (Ceramic)
2. Apex Universal, Models 929 (ABS) and 929PP (Polypropylene)
3. Glowlite, Inc. (Ceramic)
4. Hi-Way Safety, Inc., Models P20-2000W and 2001Y (ABS)
5. Interstate Sales, "Diamond Back" (Polypropylene)
6. Novabrite Models Cdot (White) Cdot-y (Yellow), Ceramic
7. Novabrite Models Pdot-w (White) Pdot-y (Yellow), Polypropylene
8. Three D Traffic Works TD10000 (ABS), TD10500 (Polypropylene)

PAVEMENT MARKERS, TEMPORARY TYPE

Temporary Markers For Long Term Day/Night Use (180 days or less)

1. Vega Molded Products "Temporary Road Marker" (3" x 4")

Temporary Markers For Short Term Day/Night Use (14 days or less)

(For seal coat or chip seal applications, clear protective covers are required)

1. Apex Universal, Model 932
2. Filtrona Extrusion, Models T.O.M., T.R.P.M., and "HH" (High Heat)
3. Hi-Way Safety, Inc., Model 1280/1281
4. Glowlite, Inc., Model 932

STRIPING AND PAVEMENT MARKING MATERIAL

Permanent Traffic Striping and Pavement Marking Tape

1. Advanced Traffic Marking, Series 300 and 400
2. Brite-Line, Series 1000
3. Brite-Line, "DeltaLine XRP"
4. Swarco Industries, "Director 35" (For transverse application only)
5. Swarco Industries, "Director 60"
6. 3M, "Stamark" Series 380 and 5730
7. 3M, "Stamark" Series 420 (For transverse application only)

Temporary (Removable) Striping and Pavement Marking Tape (180 days or less)

1. Advanced Traffic Marking, Series 200

2. Brite-Line, Series 100
3. Garlock Rubber Technologies, Series 2000
4. P.B. Laminations, Aztec, Grade 102
5. Swarco Industries, "Director-2"
6. Trelleborg Industries, R140 Series
7. 3M Series 620 "CR", and Series A750
8. 3M Series A145, Removable Black Line Mask
(Black Tape: for use only on Hot mix asphalt surfaces)
9. Advanced Traffic Marking Black "Hide-A-Line"
(Black Tape: for use only on Hot mix asphalt surfaces)
10. Brite-Line "BTR" Black Removable Tape
(Black Tape: for use only on Hot mix asphalt surfaces)
11. Trelleborg Industries, RB-140
(Black Tape: for use only on Hot mix asphalt surfaces)

Preformed Thermoplastic (Heated in place)

1. Flint Trading Inc., "Hot Tape"
2. Flint Trading Inc., "Premark Plus"
3. Ennis Paint Inc., "Flametape"

Ceramic Surfacing Laminate, 6" x 6"

1. Highway Ceramics, Inc.

CLASS 1 DELINEATORS

One Piece Driveable Flexible Type, 66-inch

1. Filtrona Extrusion, "Flexi-Guide Models 400 and 566"
2. Carsonite, Curve-Flex CFRM-400
3. Carsonite, Roadmarker CRM-375
4. FlexStake, Model 654 TM
5. GreenLine Model CGD1-66

Special Use Type, 66-inch

1. Filtrona Extrusion, Model FG 560 (with 18-inch U-Channel base)
2. Carsonite, "Survivor" (with 18-inch U-Channel base)
3. Carsonite, Roadmarker CRM-375 (with 18-inch U-Channel base)
4. FlexStake, Model 604
5. GreenLine Model CGD (with 18-inch U-Channel base)
6. Impact Recovery Model D36, with #105 Driveable Base
7. Safe-Hit with 8-inch pavement anchor (SH248-GP1)
8. Safe-Hit with 15-inch soil anchor (SH248-GP2) and with 18-inch soil anchor (SH248-GP3)

Surface Mount Type, 48-inch

1. Bent Manufacturing Company, Masterflex Model MF-180EX-48
2. Carsonite, "Channelizer"
3. FlexStake, Models 704, 754 TM, and EB4
4. Impact Recovery Model D48, with #101 Fixed (Surface-Mount) Base
5. Three D Traffic Works "Channelflex" ID No. 522248W

CHANNELIZERS

Surface Mount Type, 36-inch

1. Bent Manufacturing Company, Masterflex Models MF-360-36 (Round) and MF-180-36 (Flat)
2. Filtrona Extrusion, Flexi-Guide Models FG300PE, FG300UR, and FG300EFX
3. Carsonite, "Super Duck" (Round SDR-336)
4. Carsonite, Model SDCF03601MB "Channelizer"
5. FlexStake, Models 703, 753 TM, and EB3

6. GreenLine, Model SMD-36
7. Hi-way Safety, Inc. "Channel Guide Channelizer" Model CGC36
8. Impact Recovery Model D36, with #101 Fixed (Surface-Mount) Base
9. Safe-Hit, Guide Post, Model SH236SMA
10. Three D Traffic Works "Boomerang" ID No. 522053W

Lane Separation System

1. Filtrona Extrusion, "Flexi-Guide (FG) 300 Curb System"
2. Qwick Kurb, "Klemmfix Guide System"
3. Dura-Curb System

CONICAL DELINEATORS, 42-inch

(For 28-inch Traffic Cones, see Standard Specifications)

1. Bent Manufacturing Company "T-Top"
2. Plastic Safety Systems "Navigator-42"
3. Traffix Devices "Grabber"
4. Three D Traffic Works "Ringtop" TD7000, ID No. 742143
5. Three D Traffic Works, TD7500

OBJECT MARKERS

Type "K", 18-inch

1. Filtrona Extrusion, Model FG318PE
2. Carsonite, Model SMD 615
3. FlexStake, Model 701 KM
4. Safe-Hit, Model SH718SMA

Type "K-4" / "Q" Object Markers, 24-inch

1. Bent Manufacturing "Masterflex" Model MF-360-24
2. Filtrona Extrusion, Model FG324PE
3. Carsonite, "Channelizer"
4. FlexStake, Model 701KM
5. Safe-Hit, Models SH824SMA_WA and SH824GP3_WA
6. Three D Traffic Works ID No. 531702W and TD 5200
7. Three D Traffic Works ID No. 520896W

**CONCRETE BARRIER MARKERS AND
TEMPORARY RAILING (TYPE K) REFLECTORS**

Impactable Type

1. ARTUK, "FB"
2. Filtrona Extrusion, Models PCBM-12 and PCBM-T12
3. Duraflex Corp., "Flexx 2020" and "Electriflexx"
4. Hi-Way Safety, Inc., Model GMKRM100
5. Plastic Safety Systems "BAM" Models OM-BARR and OM-BWAR
6. Three D Traffic Works "Roadguide" Model TD 9304

Non-Impactable Type

1. ARTUK, JD Series
2. Plastic Safety Systems "BAM" Models OM-BITARW and OM-BITARA
3. Vega Molded Products, Models GBM and JD
4. Plastic Vacuum Forming, "Cap-It C400"

METAL BEAM GUARD RAIL POST MARKERS

(For use to the left of traffic)

1. Filtrona Extrusion, "Mini" (3" x 10")
2. Creative Building Products, "Dura-Bull, Model 11201"

3. Duraflex Corp., "Railrider"
4. Plastic Vacuum Forming, "Cap-It C300"

CONCRETE BARRIER DELINEATORS, 16-inch

(For use to the right of traffic)

1. Filtrona Extrusion, Model PCBM T-16
2. Safe-Hit, Model SH216RBM

CONCRETE BARRIER-MOUNTED MINI-DRUM (10" x 14" x 22")

1. Stinson Equipment Company "SaddleMarker"

GUARD RAILING DELINEATOR

(Place top of reflective element at 48 inches above plane of roadway)

Wood Post Type, 27-inch

1. Filtrona Extrusion, FG 427 and FG 527
2. Carsonite, Model 427
3. FlexStake, Model 102 GR
4. GreenLine GRD 27
5. Safe-Hit, Model SH227GRD
6. Three D Traffic Works "Guardflex" TD9100
7. New Directions Mfg, NDM27

Steel Post Type

1. Carsonite, Model CFGR-327

RETROREFLECTIVE SHEETING

Channelizers, Barrier Markers, and Delineators

1. Avery Dennison T-6500 Series (For rigid substrate devices only)
2. Avery Dennison WR-7100 Series
3. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
4. Reflexite, PC-1000 Metalized Polycarbonate
5. Reflexite, AC-1000 Acrylic
6. Reflexite, AP-1000 Metalized Polyester
7. Reflexite, Conformalight, AR-1000 Abrasion Resistant Coating
8. 3M, High Intensity

Traffic Cones, 4-inch and 6-inch Sleeves

1. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
2. Reflexite, Vinyl, "TR" (Semi-transparent) or "Conformalight"
3. 3M Series 3840
4. Avery Dennison S-9000C

Drums

1. Avery Dennison WR-6100
2. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
3. Reflexite, "Conformalight", "Super High Intensity" or "High Impact Drum Sheeting"
4. 3M Series 3810

Barricades: Type I, Medium-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Nippon Carbide Industries, CN8117
2. Avery Dennison, W 1100 series
3. 3M Series CW 44

Barricades: Type II, Medium-High-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Avery Dennison, W-2100 Series

Signs: Type II, Medium-High-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Avery Dennison, T-2500 Series
2. Nippon Carbide Industries, Nikkalite 18000

Signs: Type III, High-Intensity (Typically Encapsulated Glass-Bead Element)

1. Avery Dennison, T-5500A and T-6500 Series
2. Nippon Carbide Industries, Nikkalite Brand Ultralite Grade II
3. 3M 3870 and 3930 Series

Signs: Type IV, High-Intensity (Typically Unmetallized Microprismatic Element)

1. Avery Dennison, T-6500 Series
2. Nippon Carbide Industries, Crystal Grade, 94000 Series
3. Nippon Carbide Industries, Model No. 94847 Fluorescent Orange
4. 3M Series 3930 and Series 3924S

Signs: Type VI, Elastomeric (Roll-Up) High-Intensity, without Adhesive

1. Avery Dennison, WU-6014
2. Novabrite LLC, "Econobrite"
3. Reflexite "Vinyl"
4. Reflexite "SuperBright"
5. Reflexite "Marathon"
6. 3M Series RS20

Signs: Type VII, Super-High-Intensity (Typically Unmetallized Microprismatic Element)

1. 3M Series 3924S, Fluorescent Orange
2. 3M LDP Series 3970

Signs: Type VIII, Super-High-Intensity (Typically Unmetallized Microprismatic Element)

1. Avery Dennison, T-7500 Series
2. Avery Dennison, T-7511 Fluorescent Yellow
3. Avery Dennison, T-7513 Fluorescent Yellow Green
4. Avery Dennison, W-7514 Fluorescent Orange
5. Nippon Carbide Industries, Nikkalite Crystal Grade Series 92800
6. Nippon Carbide Industries, Nikkalite Crystal Grade Model 92847 Fluorescent Orange

Signs: Type IX, Very-High-Intensity (Typically Unmetallized Microprismatic Element)

1. 3M VIP Series 3981 Diamond Grade Fluorescent Yellow
2. 3M VIP Series 3983 Diamond Grade Fluorescent Yellow/Green
3. 3M VIP Series 3990 Diamond Grade
4. Avery Dennison T-9500 Series
5. Avery Dennison, T9513, Fluorescent Yellow Green
6. Avery Dennison, W9514, Fluorescent Orange

SPECIALTY SIGNS

1. Reflexite "Endurance" Work Zone Sign (with Semi-Rigid Plastic Substrate)

ALTERNATIVE SIGN SUBSTRATES

Fiberglass Reinforced Plastic (FRP) and Expanded Foam PVC

1. Fiber-Brite (FRP)
2. Sequentia, "Polyplate" (FRP)
3. Intoplast Group "InteCel" (0.5 inch for Post-Mounted CZ Signs, 48-inch or less)(PVC)

Aluminum Composite, Temporary Construction Signs Only

1. Alcan Composites "Dibond Material, 80 mils"

2. Mitsubishi Chemical America, Alpolic 350

8-1.03 ENGINEERING FABRICS

Engineering fabrics shall conform to the provisions in Section 88, "Geosynthetics," of the Amendments to the Standard Specifications and these special provisions.

Filter fabric for this project shall be ultraviolet (UV) ray protected.

The requirement that ultraviolet (UV) treated fabrics be submitted to the Transportation Laboratory at least 45 days prior to use shall not apply.

SECTION 8-2. CONCRETE

8-2.01 PORTLAND CEMENT CONCRETE

Portland cement concrete shall conform to the provisions in Section 90, "Portland Cement Concrete," of the Standard Specifications and these special provisions.

Caltrans maintains a list of sources of fine and coarse aggregate that have been approved for use with a reduced amount of supplementary cementitious material in the total amount of cementitious material to be used. A source of aggregate will be considered for addition to the approved list if the producer of the aggregate submits to the Transportation Laboratory certified test results from a qualified testing laboratory that verify the aggregate complies with the requirements. Before the testing starts, the aggregate test shall be registered with Caltrans. A registration number can be obtained by calling (916) 227-7228. The registration number shall be used as the identification for the aggregate sample in correspondence with Caltrans. Upon request, a split of the tested sample shall be provided to Caltrans. Approval of aggregate will depend upon compliance with the specifications, based on the certified test results submitted, together with any replicate testing Caltrans may elect to perform. Approval will expire 3 years from the date the most recent registered and evaluated sample was collected from the aggregate source.

Qualified testing laboratories shall conform to the following requirements:

1. Laboratories performing ASTM Designation: C 1293 shall participate in the Cement and Concrete Reference Laboratory (CCRL) Concrete Proficiency Sample Program and shall have received a score of 3 or better on each test of the previous 2 sets of concrete samples.
2. Laboratories performing ASTM Designation: C 1260 shall participate in the Cement and Concrete Reference Laboratory (CCRL) Pozzolan Proficiency Sample Program and shall have received a score of 3 or better on the shrinkage and soundness tests of the previous 2 sets of pozzolan samples.

Aggregates on the list shall conform to one of the following requirements:

1. When the aggregate is tested in conformance with the requirements in California Test 554 and ASTM Designation: C 1293, the average expansion at one year shall be less than or equal to 0.040 percent; or
2. When the aggregate is tested in conformance with the requirements in California Test 554 and ASTM Designation: C 1260, the average of the expansion at 16 days shall be less than or equal to 0.15 percent.

If the aggregates used in the concrete are on the Caltrans' list, the minimum amount of supplementary cementitious material shall conform to the following:

1. If fly ash or natural pozzolan conforming to the provisions in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials," of the Standard Specifications is used, the minimum amount of supplementary cementitious material shall be 15 percent by weight of the total cementitious material; or

2. If silica fume conforming to the provisions in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials," of the Standard Specifications is used, the minimum amount of supplementary cementitious material shall be 7 percent by weight of the total cementitious material.

The limitation on tricalcium silicate (C₃S) content in Type II cement specified in Section 90-2.01A, "Cement," of the Standard Specifications shall not apply.

SECTION 8-3. WELDING

8-3.01 WELDING

GENERAL

Flux cored welding electrodes conforming to the requirements of AWS A5.20 E6XT-4 or E7XT-4 shall not be used to perform welding for this project.

Wherever reference is made to the following AWS welding codes in the Standard Specifications, on the plans, or in these special provisions, the year of adoption for these codes shall be as listed:

AWS Code	Year of Adoption
D1.1	2006
D1.4	2005
D1.5	2002
D1.6	1999

Requirements of the AWS welding codes shall apply unless otherwise specified in the Standard Specifications, on the plans, or in these special provisions. Wherever the abbreviation AWS is used, it shall be equivalent to the abbreviations ANSI/AWS or AASHTO/AWS.

Section 6.1.1.1 of AWS D1.5 is replaced with the following:

Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing of each weld joint prior to welding, during welding, and after welding as specified in this section and as necessary to ensure that materials and workmanship conform to the requirements of the contract documents.

Unless otherwise specified, Sections 6.1.3 through 6.1.4.3 of AWS D1.1, Section 7.1.2 of AWS D1.4, and Sections 6.1.1.2 through 6.1.3.3 of AWS D1.5 are replaced with the following:

The QC Inspector shall be the duly designated person who acts for and on behalf of the Contractor for inspection, testing, and quality related matters for all welding.

Quality Assurance (QA) is the prerogative of the Engineer. The QA Inspector is the duly designated person who acts for and on behalf of the Engineer.

The QC Inspector shall be responsible for quality control acceptance or rejection of materials and workmanship, and shall be currently certified as an AWS Certified Welding Inspector (CWI) in conformance with the requirements in AWS QC1, "Standard for AWS Certification of Welding Inspectors."

The QC Inspector may be assisted by an Assistant QC Inspector provided that this individual is currently certified as an AWS Certified Associate Welding Inspector (CAWI) in conformance with the requirements in AWS QC1, "Standard for AWS Certification of Welding Inspectors." The Assistant QC Inspector may perform inspection under the direct supervision of the QC Inspector provided the assistant is always within visible and audible range of the QC Inspector. The QC Inspector shall be responsible for signing all reports and for determining if welded materials conform to workmanship and acceptance criteria. The ratio of QC Assistants to QC Inspectors shall not exceed 5 to 1.

When the term "Inspector" is used without further qualification, it shall refer to the QC Inspector.

When any work is welded in conformance with the provisions in Section 75, "Miscellaneous Metal," of the Standard Specifications, not including Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications, Section 6.1.4 of AWS D1.1 is replaced with the following:

The QC Inspector shall be responsible for quality control acceptance or rejection of materials and workmanship and shall be currently certified as an AWS CWI in conformance with the requirements in AWS QC1, "Standard for AWS Certification of Welding Inspectors," or as a Welding Inspector Specialist (WIS) in conformance with the requirements in AWS B5.2, "Specification for the Qualification of Welding Inspector Specialists and Welding Inspector Assistants."

Section 6.14.6, "Personnel Qualification," of AWS D1.1, Section 7.8, "Personnel Qualification," of AWS D1.4, and Section 6.1.3.4, "Personnel Qualification," of AWS D1.5 are replaced with the following:

Personnel performing nondestructive testing (NDT) shall be qualified and certified in conformance with the requirements of the American Society for Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A and the Written Practice of the NDT firm. The Written Practice of the NDT firm shall meet or exceed the guidelines of the ASNT Recommended Practice No. SNT-TC-1A. Individuals who perform NDT, review the results, and prepare the written reports shall be either:

- A. Certified NDT Level II technicians, or;
- B. Level III technicians who hold a current ASNT Level III certificate in that discipline and are authorized and certified to perform the work of Level II technicians.

Section 6.5.4 of AWS D1.5 is replaced with the following:

The QC Inspector shall inspect and approve each joint preparation, assembly practice, welding technique, joint fit-up, and the performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code and the approved Welding Procedure Specification (WPS) are met. The QC Inspector shall examine the work to make certain that it meets the requirements of Sections 3 and 6.26. The size and contour of all welds shall be measured using suitable gages. Visual inspection for cracks in welds and base metal, and for other discontinuities shall be aided by strong light, magnifiers, or such other devices as may be helpful. Acceptance criteria different from those specified in this code may be used when approved by the Engineer.

Section 6.6.5, "Nonspecified NDT Other than Visual," of AWS D1.1, Section 7.6.5 of AWS D1.4 and Section 6.6.5 of AWS D1.5 shall not apply.

For any welding, the Engineer may direct the Contractor to perform NDT that is in addition to the visual inspection or NDT specified in the AWS or other specified welding codes, in the Standard Specifications, or in these special provisions. Except as provided for in these special provisions, additional NDT required by the Engineer, and associated repair work, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications. Prior to release of welded material by the Engineer, if testing by NDT methods other than those originally specified discloses an attempt to defraud or reveals a gross nonconformance, all costs associated with the repair of the deficient area, including NDT of the weld and of the repair, and any delays caused by the repair, shall be at the Contractor's expense. A gross nonconformance is defined as the sum of planar type rejectable indications in more than 20 percent of the tested length.

When less than 100 percent of NDT is specified for any weld, it is expected that the entire length of weld meet the specified acceptance-rejection criteria. Should any welding deficiencies be discovered by additional NDT directed or performed by the Engineer that utilizes the same NDT method as that originally specified, all costs associated with the repair of the deficient area, including NDT of the weld and of the weld repair, and any delays caused by the repair, shall be at the Contractor's expense.

Repair work to correct welding deficiencies discovered by visual inspection directed or performed by the Engineer, and any associated delays or expenses caused to the Contractor by performing these repairs, shall be at the Contractor's expense.

The Engineer shall have the authority to verify the qualifications or certifications of any welder, QC Inspector, or NDT personnel to specified levels by retests or other means approved by the Engineer.

Inspection and approval of all joint preparations, assembly practices, joint fit-ups, welding techniques, and the performance of each welder, welding operator, and tack welder shall be documented by the QC Inspector on a daily basis for each day welding is performed. For each inspection, including fit-up, Welding Procedure Specification (WPS) verification, and final weld inspection, the QC Inspector shall confirm and document compliance with the requirements of the AWS or other specified code criteria and the requirements of these special provisions on all welded joints before welding, during welding, and after the completion of each weld.

In addition to the requirements specified in the applicable code, the period of effectiveness for a welder's or welding operator's qualification shall be a maximum of 3 years for the same weld process, welding position, and weld type. If welding will be performed without gas shielding, then qualification shall also be without gas shielding. Excluding welding of fracture critical members, a valid qualification at the beginning of work on a contract will be acceptable for the entire period of the contract, as long as the welder's or welding operator's work remains satisfactory.

In addition to the requirements of AWS D1.1, welding procedures qualification for work welded in conformance with that code shall conform to the following:

When a nonstandard weld joint is to be made using a combination of WPSs, a single test may be conducted combining the WPSs to be used in production, provided the essential variables, including weld bead placement, of each process are limited to those established in Table 4.5.

In addition to the requirements of AWS D1.5, Section 5.12 or 5.13, welding procedures qualification for work welded in conformance with that code shall conform to the following requirements:

- A. Unless considered prequalified, fillet welds shall be qualified in each position. The fillet weld soundness test shall be conducted using the essential variables of the WPS as established by the Procedure Qualification Record (PQR).
- B. For qualification of joints that do not conform to Figures 2.4 and 2.5 of AWS D1.5, a minimum of two WPS qualification tests are required. The tests shall be conducted using both Figure 5.1 and Figure 5.3. The test conforming to Figure 5.1 shall be conducted in conformance with AWS D1.5, Section 5.12 or 5.13. The test conforming to Figure 5.3 shall be conducted using the welding electrical parameters that were established for the test conducted conforming to Figure 5.1. The ranges of welding electrical parameters established during welding per Figure 5.1 in conformance with AWS D1.5, Section 5.12, shall be further restricted according to the limits in Table 5.3 during welding per Figure 5.3.
- C. Multiple zones within a weld joint may be qualified. The travel speed, amperage, and voltage values that are used for tests conducted per AWS D1.5 Section 5.13 shall be consistent for each pass in a weld joint, and shall in no case vary by more than ± 10 percent for travel speed, ± 10 percent for amperage, and ± 7 percent for voltage as measured from a predetermined target value or average within each weld pass or zone. The travel speed shall in no case vary by more than ± 15 percent when using submerged arc welding.
- D. For a WPS qualified in conformance with AWS D1.5 Section 5.13, the values to be used for calculating ranges for current and voltage shall be based on the average of all weld passes made in the test. Heat input shall be calculated using the average of current and voltage of all weld passes made in the test for a WPS qualified in conformance with Section 5.12 or 5.13.
- E. Macroetch tests are required for WPS qualification tests, and acceptance shall be per AWS D1.5 Section 5.19.3.

- F. When a nonstandard weld joint is to be made using a combination of WPSs, a test conforming to Figure 5.3 may be conducted combining the WPSs to be used in production, provided the essential variables, including weld bead placement, of each process are limited to those established in Table 5.3.
- G. Prior to preparing mechanical test specimens, the PQR welds shall be inspected by visual and radiographic tests. Backing bar shall be 3 inches in width and shall remain in place during NDT testing. Results of the visual and radiographic tests shall comply with AWS D1.5 Section 6.26.2, excluding Section 6.26.2.2. Test plates that do not comply with both tests shall not be used.

WELDING QUALITY CONTROL

Welding quality control shall conform to the requirements in the AWS or other specified welding codes, the Standard Specifications, and these special provisions.

Unless otherwise specified, welding quality control shall apply when any work is welded in conformance with the provisions in Section 49, "Piling," Section 52, "Reinforcement," Section 55, "Steel Structures," or Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications.

All welding will require inspection by the Engineer. The Contractor shall request inspection at least 3 business days prior to the beginning of welding for locations within California and 5 business days for locations outside of California. The Contractor shall request inspection at:

<http://www.dot.ca.gov/hq/esc/Translab/OSM/smbforms.htm>

Continuous inspection shall be provided when any welding is being performed. Continuous inspection, as a minimum, shall include having a QC Inspector within such close proximity of all welders or welding operators so that inspections by the QC Inspector of each welding operation at each welding location does not lapse for a period exceeding 30 minutes.

When joint weld details that are not prequalified to the details of Section 3 of AWS D1.1 or to the details of Figure 2.4 or 2.5 of AWS D1.5 are proposed for use in the work, the joint details, their intended locations, and the proposed welding parameters and essential variables, shall be approved by the Engineer. The Contractor shall allow the Engineer 15 days to complete the review of the proposed joint detail locations. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications. Upon approval of the proposed joint detail locations and qualification of the proposed joint details, welders and welding operators using these details shall perform a qualification test plate using the WPS variables and the joint detail to be used in production. The test plate shall have the maximum thickness to be used in production and a minimum length of 18 inches. The test plate shall be mechanically and radiographically tested. Mechanical and radiographic testing and acceptance criteria shall be as specified in the applicable AWS codes.

The Engineer will witness all qualification tests for WPSs that were not previously approved by the Department. Unless otherwise specified, an approved independent third party will witness the qualification tests for welders or welding operators. The independent third party shall be a current CWI and shall not be an employee of the contractor performing the welding. The Contractor shall allow the Engineer 15 days to review the qualifications and copy of the current certification of the independent third party. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications. The Contractor shall notify the Engineer 7 days prior to performing any qualification tests. Witnessing of qualification tests by the Engineer shall not constitute approval of the intended joint locations, welding parameters, or essential variables.

The Contractor shall designate in writing a welding Quality Control Manager (QCM). The QCM shall be responsible directly to the Contractor for the quality of welding, including materials and workmanship, performed by the Contractor and subcontractors.

The QCM shall be the sole individual responsible to the Contractor for submitting, receiving, reviewing, and approving all correspondence, required submittals, and reports to and from the Engineer. The QCM shall be a registered professional engineer or shall be currently certified as a CWI.

Unless the QCM is hired by a subcontractor providing only QC services, the QCM shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project. The QCM may be an employee of the Contractor.

Welding inspection personnel or NDT firms to be used in the work shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project, except for the following conditions:

- A. The work is welded in conformance with AWS D1.5 and is performed at a permanent fabrication or manufacturing facility that is certified under the AISC Quality Certification Program, Category Cbr, Major Steel Bridges and Fracture Critical endorsement F, when applicable.
- B. The work is welded in conformance with AWS D1.1 at a permanent pipe manufacturing or fabrication facility that maintains a QC program that is independent from production.

For welding performed at such facilities, the inspection personnel or NDT firms may be employed or compensated by the facility performing the welding provided the facility maintains a QC program that is independent from production.

Prior to submitting the Welding Quality Control Plan (WQCP) required herein, a prewelding meeting between the Engineer, the Contractor's QCM, and a representative from each entity performing welding or inspection for this project, shall be held to discuss the requirements for the WQCP.

The Contractor shall submit to the Engineer, in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, 2 copies of a separate WQCP for each subcontractor or supplier for each item of work for which welding is to be performed.

The Contractor shall allow the Engineer 15 days to review the WQCP submittal after a complete plan has been received. No welding shall be performed until the WQCP is approved in writing by the Engineer. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

An amended WQCP or any addendum to the approved WQCP shall be submitted to, and approved in writing by the Engineer, for proposed revisions to the approved WQCP. An amended WQCP or addendum will be required for revisions to the WQCP, including but not limited to a revised WPS; additional welders; changes in NDT firms, QC, or NDT personnel or procedures; or updated systems for tracking and identifying welds. The Engineer shall have 7 days to complete the review of the amended WQCP or addendum. Work affected by the proposed revisions shall not be performed until the amended WQCP or addendum has been approved. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Information regarding the contents, format, and organization of a WQCP, is available at the Transportation Laboratory and at:

<http://www.dot.ca.gov/hq/esc/Translab/OSM/smbresources.htm>

After final approval of the WQCP, amended WQCP, or addendum, the Contractor shall submit 7 copies to the Engineer of the approved documents. A copy of the Engineer approved document shall be available at each location where welding is to be performed.

A daily production log for welding shall be kept for each day that welding is performed. The log shall clearly indicate the locations of all welding. The log shall include the welders' names, amount of welding performed, any problems or deficiencies discovered, and any testing or repair work performed, at each location. The daily report from each QC Inspector shall also be included in the log.

The following items shall be included in a Welding Report that is to be submitted to the Engineer within 15 days following the performance of any welding:

- A. A daily production log.
- B. Reports of all visual weld inspections and NDT.
- C. Radiographs and radiographic reports, and other required NDT reports.
- D. A summary of welding and NDT activities that occurred during the reporting period.
- E. Reports of each application of heat straightening.
- F. A summarized log listing the rejected lengths of weld by welder, position, process, joint configuration, and piece number.
- G. Documentation that the Contractor has evaluated all radiographs and other nondestructive tests and corrected all rejectable deficiencies, and that all repaired welds have been reexamined using the required NDT and found acceptable.

The following information shall be clearly written on the outside of radiographic envelopes: name of the QCM, name of the nondestructive testing firm, name of the radiographer, date, contract number, complete part description, and all included weld numbers, report numbers, and station markers or views, as detailed in the WQCP. In addition, all interleaves shall have clearly written on them the part description and all included weld numbers and station markers or views, as detailed in the WQCP. A maximum of 2 pieces of film shall be used for each interleave.

Reports of all visual inspections and NDT shall be signed by the inspector or technician and submitted daily to the QCM for review and signature prior to submittal to the Engineer. Corresponding names shall be clearly printed or typewritten next to all signatures. Reports of all NDT, whether specified, additional, or informational, performed by the Contractor shall be submitted to the Engineer.

The Engineer will review the Welding Report to determine if the Contractor is in conformance with the WQCP. Except for steel pipe piling, the Engineer shall be allowed 15 days to review the report and respond in writing after the complete Welding Report has been received. Prior to receiving notification from the Engineer of the Contractor's conformance with the WQCP, the Contractor may encase in concrete or cover welds for which the Welding Report has been submitted. However, should the Contractor elect to encase or cover those welds prior to receiving notification from the Engineer, it is expressly understood that the Contractor shall not be relieved of the responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Material not conforming to these requirements will be subject to rejection. Should the Contractor elect to wait to encase or cover welds pending notification by the Engineer, and in the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

For steel pipe piling, including bar reinforcement in the piling, the Contractor shall allow the Engineer 2 business days to review the Welding Report and respond in writing after the required items have been received. No field welded steel pipe piling shall be installed, and no reinforcement in the piling shall be encased in concrete until the Engineer has approved the above requirements in writing.

In addition to the requirements in AWS D1.1 and AWS D1.5, second-time excavations of welds or base metal to repair unacceptable discontinuities, regardless of NDT method, and all repairs of cracks require prior approval of the Engineer.

The Engineer shall be notified immediately in writing when welding problems, deficiencies, base metal repairs, or any other type of repairs not submitted in the WQCP are discovered, and also of the proposed repair procedures to correct them. For requests to perform second-time repairs or repairs of cracks, the Contractor shall include an engineering evaluation of the proposed repair. The engineering evaluation, at a minimum, shall address the following:

- A. What is causing each defect?
- B. Why the repair will not degrade the material properties?
- C. What steps are being taken to prevent similar defects from happening again?

The Contractor shall allow the Engineer 7 days to review these procedures. No remedial work shall begin until the repair procedures are approved in writing by the Engineer. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The QCM shall sign and furnish to the Engineer, a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each item of work for which welding was performed. The certificate shall state that all of the materials and workmanship incorporated in the work, and all required tests and inspections of this work, have been performed in conformance with the details shown on the plans, the Standard Specifications, and these special provisions.

SECTION 9. DESCRIPTION OF BRIDGE WORK

The bridge work to be done consists, in general, of constructing a new bridge as shown on the plans, and briefly described as follows:

TENNESSEE CREEK BRIDGE BRIDGE NO. 25C-0038

A single span cast-in-place prestressed concrete superstructure approximately 64 feet long and 55 feet wide on reinforced concrete seats supported by cast-in-drilled-hole concrete piling.

SECTION 10. CONSTRUCTION DETAILS

SECTION 10-1. GENERAL

10-1.01 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

Temporary railing (Type K) and temporary crash cushions shall be secured in place prior to commencing work for which the temporary railing and crash cushions are required.

Prior to beginning work, the boundaries of the Environmentally Sensitive Areas (ESA) shall be clearly delineated in the field. The boundaries shall be delineated by the installation of temporary fence (Type ESA). The existing oak trees that are to remain shall be protected in place by means of installing Type ESA fence as shown on the plans. Attention is directed to "Environmentally Sensitive Area" and "Temporary Fence (Type ESA)" of these special provisions.

A first order of work shall be to install temporary fence (Type WM), as noted in the plans on APN 069-241-15.

A first order of work shall be to submit required items for the bridge construction over Tennessee Creek. The time period for completing the work within the stream zone of Tennessee Creek shall be restricted to periods of low stream flow and dry weather and shall be confined to the period of April 15 to October 15. Construction activities shall be timed with the awareness of precipitation forecasts and likely increases in stream flow. Construction activities within the project limits shall cease until all reasonable erosion control measures, inside and outside of the stream zone, have been implemented prior to all storm events. No work within the stream zone shall occur during wet weather. Wet weather is defined as when there has been ¼ inch of rain in a 24-hour period. In addition, no work within the stream zone shall occur during a dry out period of 24 hours after the above referenced wet weather. Revegetation, restoration and erosion control work is not confined to this time period.

Prior to excavation along 'GVR-2', the Contractor shall pothole and positively locate the existing 20-inch waterline and protect in place at all times during construction, the entire length of the waterline within the limits of the project.

After Stage 1 Construction rough grading, Contractor shall provide specified working days for utility relocation work in accordance with Section 5-1.25 "Utilities" of these special provisions.

Testing for the 6-inch and 20-inch waterlines shall occur after the aggregate base (where required) and subgrade is placed and compacted. No lines shall be accepted as passing until all underground construction that may disturb the waterline is compacted.

Attention is directed to the EID Technical Specifications in Appendix C of these contract documents. Final tie-in connections for the new EID 20-inch Gold Hill Intertie Waterline segment shall be completed overnight, during a period of low demand (during the months of December or January) as determined and approved by EID. The existing 20-inch waterline shall continually remain in service until final tie-in connections to the new 20-inch waterline are completed and the new 20-inch waterline is fully operational. It is the Contractor's responsibility that this portion of the work be completed in a timely manner. In the event the 20-inch waterline tie-in connections are not completed during the months of December or January, the Contractor shall, at his own expense, fill a minimum of 75% of the volume of the constructed portion of 20-inch pipe with potable water, and cap both ends. The 20-inch pipe shall remain filled with water until final disinfection, no sooner than ten (10) consecutive working days prior to the final tie-in connections, are to take place. The County and the District will not be responsible for any costs relating to filling, capping, or flushing and properly discharging this water from the 20-inch pipeline. The 6-inch EID waterline relocation connections do not conform to this window, and may be completed at any time, per approval of EID and the Engineer. The existing 6-inch waterline shall continually remain in service until final tie-in connections to the new 6-inch waterline are complete and the new 6-inch waterline is fully operational. If the tie-in work is not performed during the specified timeline, all delay costs, including overhead, associated with subsequent work shall be borne by the Contractor.

Due to the existing 20-inch waterline, the Contractor shall not proceed with Stage 2 or 3 construction until the new 20-inch waterline is accepted and in service.

The Contractor's schedule shall correctly identify the construction for the bridge footings, abutments, or superstructure within the restricted period between April 15 and October 15. The schedule shall also correctly reflect the construction of the 20" EID waterline tie-ins during December or January.

The work shall be performed in conformance with the stages of construction shown on the plans. Nonconflicting work in subsequent stages may proceed concurrently with work in preceding stages, provided satisfactory progress is maintained in the preceding stages of construction, and that public safety, convenience, and water supply is maintained.

Not less than sixty (60) days prior to applying seeds, the Contractor shall furnish the Engineer a statement from the vendor that the order for the seed required for this contract has been received and accepted by the vendor. The statement from the vendor shall include the names and quantity of the seed ordered and the anticipated date of delivery.

The Contractor shall not perform any electrical work above ground until all electrical materials have been received by the Contractor. The Contractor may place underground materials such as conduit, pull boxes, and foundations prior to receiving all electrical materials.

The uppermost layer of new hot mix asphalt (Type A) pavement shall not be placed until all underlying conduits, conductors, loop detectors, or any other under-pavement items have been installed.

Prior to commencement of the traffic signal functional test at any location, all items of work related to signal control shall be completed and all roadside signs, pavement delineation, and pavement markings shall be in place at that location.

Attention is directed to "Maintaining Traffic" and "Temporary Pavement Delineation" of these special provisions and to the stage construction sheets of the plans.

In each stage, after completion of the preceding stage, the first order of work shall be the removal of existing pavement delineation as directed by the Engineer. Pavement delineation removal shall be coordinated with new delineation so that lane lines are provided at all times on traveled ways open to public traffic.

The Contractor shall maintain adequate drainage, as determined by the Engineer, during the stage construction. Full compensation for doing all work involved in the maintaining adequate drainage shall be considered as included in the various contract items of roadway and bridge work and no separate payment will be allowed therefor.

Construction of the new structural section adjacent to the existing traveled way shall be performed in successive and, once all operations are under way, concurrent operations of excavating, preparing subgrade, placing base materials and paving. Excavation within 8 feet of the existing traveled way shall not precede the paving operation by more than 5 working days unless:

- A. approved in writing by the Engineer and;
- B. material is placed and compacted against the vertical cuts within 8 feet of the existing traveled way. During excavation operations, native material may be used for this purpose, however, once the placing of the structural section commences, structural material shall be used. The material shall be placed to the level of the elevation of the top of existing pavement and tapered at a slope of 1:4 (vertical:horizontal) or flatter to the bottom of the excavation. Full compensation for placing the material on a 1:4 slope, regardless of the number of times it is required, and subsequent removing or reshaping of the material to the lines and grades shown on the plans shall be considered as included in the contract price paid for the various items of roadway and bridge work and no additional compensation will be allowed therefor. No payment will be made for material placed in excess of that required for the structural section.

At the end of each working day if a difference in excess of 0.15 foot exists between the elevation of the existing pavement and the elevation of excavations within 8 feet of the traveled way, material shall be placed and compacted against the vertical cuts adjacent to the traveled way. During excavation operations, native material may be used for this purpose; however, once placing of the structural section commences, structural material shall be used. The material shall be placed to the level of the elevation of the top of existing pavement and tapered at a slope of 4:1 (horizontal:vertical) or flatter to the bottom of the excavation. Treated base shall not be used for the taper. Full compensation for placing the material on a 4:1 slope, regardless of the number of times the material is required, and subsequent removing or reshaping of the material to the lines and grades shown on the plans shall be considered as included in the contract price paid for the various items of roadway and bridge work and no additional compensation will be allowed therefor. No payment will be made for material placed in excess of that required for the structural section.

At those locations exposed to public traffic where guard railings or barriers are to be constructed, reconstructed, or removed and replaced, the Contractor shall schedule operations so that at the end of each working day there shall be no post holes open nor shall there be any railing or barrier posts installed without the blocks and rail elements assembled and mounted thereon.

10-1.02 CONSTRUCTION PROJECT INFORMATION SIGNS

Before any major physical construction work readily visible to roadway users is started on this contract, the Contractor shall furnish and erect three (3) Type 1 Construction Project Information signs at the locations designated by the Engineer.

The sign letters, the border and the Department's construction logos shall conform to the colors (non-reflective) and details shown in Appendix B, and shall be on a white background (non-reflective). The colors blue and orange shall conform to PR Color Number 3 and Number 6, respectively, as specified in the Federal Highway Administration's Color Tolerance Chart.

The letter sizes to be used shall be as shown on the detail included in Appendix B of these special provisions. The information shown on the signs shall be limited to that shown in Appendix B. The signs shall be kept clean and in good repair by the Contractor.

Upon completion of the work, the signs shall be removed and disposed of outside the roadway right of way in conformance with the provisions in Section 7-1.13 of the Standard Specifications.

Full compensation for furnishing, erecting, maintaining, and removing and disposing of the construction project information signs shall be considered as included in the contract lump sum price paid for construction area signs and no additional compensation will be allowed therefor.

10-1.03 WATER POLLUTION CONTROL

GENERAL

To comply with NPDES General Permit for "Storm Water Discharges Associated with Construction and Land Disturbance Activities" (Order No. 2009-0009-DWQ, NPDES No. CAS000002) hereinafter called the "Permit", the Department has prepared a Storm Water Pollution Prevention Plan (SWPPP) for the project and submitted it to the RWQCB via the RWQCB's Storm Water Multi Application Reporting and Tracking System (SMARTS). Notwithstanding the Department's submission of a SWPPP to the RWQCB, you must prepare a SWPPP in accordance with this section that is specifically tailored to suit your operations and staging. If you choose to submit a SWPPP that is identical to the one the Department has entered into SMARTS or that incorporates elements thereof, submission of such a SWPPP shall be conclusive evidence that you have reviewed the incorporated elements of the Department's SWPPP thoroughly, determined that those elements satisfy this section and the Permit requirements as they relate to your operations and staging, adopted those elements as your own, and assumed full responsibility for any liability associated with SWPPP implementation.

Summary

Discharges of storm water from the project must comply with the Permit. Manage work activities to reduce the discharge of pollutants to surface waters, groundwater, or municipal separate storm sewer systems including work items shown in the Proposal Pay Items and Bid Price Schedule for:

1. Prepare SWPPP. SWPPP preparation includes obtaining SWPPP acceptance, amending the SWPPP, preparing a CSMP and a SAP, and monitoring and inspecting WPC practices at the job site.
2. Storm Water Annual Report. Storm Water Annual Report preparation includes certifications, monitoring and inspection results, and obtaining Storm Water Annual Report acceptance.
3. Storm Water Sampling and Analysis Day. Storm Water Sampling and Analysis Day includes reporting of storm water quality per qualifying rain event. If specified for the risk level, the work includes preparation, collection, analysis, and reporting of storm water samples for turbidity, pH, and other constituents.
4. Rain Event Action Plan. If specified for the project risk level, REAP preparation includes preparing and submitting REAP forms and monitoring weather forecasts.

Do not start work until:

1. SWPPP is accepted.
2. WDID is issued.
3. SWPPP review requirements have been fulfilled. If the RWQCB requires time for SWPPP review, allow 30 days for the RWQCB to review the SWPPP as specified under "Submittals" of these special provisions.

This project is Risk Level 2.

Definitions and Abbreviations

active and inactive areas: (1) Active areas have soil disturbing work activities occurring at least once within 14 days, and (2) Inactive areas are areas that have not been disturbed for at least 15 days.

BMPs: Best Management Practices are water pollution control practices.

construction phase: Construction phases are (1) Highway Construction including work activities for building roads and structures, (2) Plant Establishment including maintenance on vegetation installed for final stabilization, and (3) Suspension where work activities are suspended and areas are inactive.

CSMP: Construction Site Monitoring Program.

NAL: Numeric Action Level.

NEL: Numeric Effluent Limit.

NPDES: National Pollutant Discharge Elimination System.

NOI: Notice of Intent.

normal working hours: The hours you normally work on this project.

Preparation Manual: The Caltrans' "Storm Water Pollution Prevention Plan and Water Pollution Control Program Preparation Manual."

QSD: Qualified SWPPP Developer.

QSP: Qualified SWPPP Practitioner.

qualified rain event: A qualified rain event is a storm that produces at least 0.5 inch of precipitation with a 48 hour or greater period between storms.

REAP: Rain Event Action Plan.

RWQCB: Regional Water Quality Control Board.

SAP: Sampling and Analysis Plan.

SSC: Suspended Sediment Concentration.

SWRCB: State Water Resources Control Board.

SWPPP: Storm Water Pollution Prevention Plan.

WDID: Waste Discharge Identification Number.

WPC: Water Pollution Control.

WPC Manager: Water Pollution Control Manager. The WPC Manager implements water pollution control work described in the SWPPP and oversees revisions and amendments to the SWPPP.

Submittals

Within 20 days after contract approval, start the following process for SWPPP acceptance:

1. Submit 3 copies of the SWPPP and allow 20 days for the Engineer's review. If revisions are required, the Engineer provides comments and specifies the date that the review stopped.
2. Change and resubmit the SWPPP within 15 days of receipt of the Engineer's comments. The Engineer's review resumes when the complete SWPPP is resubmitted.
3. When the Engineer accepts the SWPPP, submit an electronic copy and 4 printed copies of the accepted SWPPP.

Submit:

1. Storm water training records including training dates and subjects for employees and subcontractors. Include dates and subjects for ongoing training, including tailgate meetings.
2. Employee training records:
 - 2.1. Within 5 days of SWPPP acceptance for existing employees
 - 2.2. Within 5 days of training for new employees
 - 2.3. At least 5 days before subcontractors start work for subcontractor's employees

Prepare a Storm Water Annual Report for the reporting period from July 1st to June 30th. For the prior reporting period, submit the report no later than July 15th if construction occurs from July 1st through June 30th or within 15 days after contract acceptance if construction ends before June 30th.

Submit the Storm Water Annual Report as follows:

1. Submit 2 copies of the Storm Water Annual Report and allow 10 days for the Engineer's review. If revisions are required, the Engineer provides comments and specifies the date that the review stopped.

2. Change and resubmit the Storm Water Annual Report within 5 days of receipt of the Engineer's comments. The Engineer's review resumes when the complete Storm Water Annual Report is resubmitted.
3. When the Engineer accepts the Storm Water Annual Report, insert the WPC Manager's signed certification and the Engineer's signed certification.

Submit one electronic copy and 2 printed copies of the accepted Storm Water Annual Report.

Submit as required:

1. NAL Exceedance Reports
2. NEL Exceedance Reports
3. Visual Monitoring Reports
4. Inspection Reports
5. BMP Status Report

At least 5 days before operating any construction support facility, submit:

1. A plan showing the location and quantity of WPC practices associated with the construction support facility
2. A copy of the NOI approved by the RWQCB and the SWPPP approved by the RWQCB if you will be operating a batch plant or a crushing plant under the General Industrial Permit

Quality Control and Assurance

Training

Provide storm water training for:

1. Project managers
2. Supervisory personnel
3. Employees involved with WPC work

Train all employees, including subcontractor's employees, in the following subjects:

1. WPC rules and regulations
2. Implementation and maintenance for:
 - 2.1. Temporary Soil Stabilization
 - 2.2. Temporary Sediment Control
 - 2.3. Tracking Control
 - 2.4. Wind Erosion Control
 - 2.5. Material pollution prevention and control
 - 2.6. Waste management
 - 2.7. Non-storm water management
 - 2.8. Identifying and handling hazardous substances
 - 2.9. Potential dangers to humans and the environment from spills and leaks or exposure to toxic or hazardous substances

Employees must receive initial WPC training before working on the job site.

Conduct weekly training meetings covering:

1. WPC BMP deficiencies and corrective actions
2. BMPs that are required for work activities during the week
3. Spill prevention and control
4. Material delivery, storage, use, and disposal
5. Waste management
6. Non-storm water management procedures

Training for personnel to collect water quality samples must include:

1. SAP review
2. Health and safety review
3. Sampling simulations

If you operate construction support facilities, protect storm water systems or receiving waters from the discharge of potential pollutants by using WPC practices.

Construction support facilities include:

1. Staging areas
2. Storage yards for equipment and materials
3. Mobile operations
4. Batch plants for PCC and HMA
5. Crushing plants for rock and aggregate
6. Other facilities installed for your convenience such as haul roads

If you operate a batch plant to manufacture PCC, HMA, or other material; or a crushing plant to produce rock or aggregate; obtain coverage under the General Industrial General Permit. You must be covered under the General Industrial Permit for batch plants and crushing plants located:

1. Outside of the job site
2. Within the job site that serve one or more contracts

Discharges from manufacturing facilities such as batch plants must comply with the general waste discharge requirements for Order No. 97-03-DWQ, NPDES General Permit No. CAS000001, issued by the SWRCB for "Discharge of Stormwater Associated with Industrial Activities Excluding Construction Activities." For the General Industrial Permit, go to:

<http://www.waterboards.ca.gov/>

You may obtain copies of the Preparation Manual from the Publication Distribution Unit. The mailing address for the Publication Distribution Unit is:

State of California
Department of Transportation
Publication Distribution Unit
1900 Royal Oaks Drive
Sacramento, California 95815
Telephone: (916) 445-3520

The Preparation Manual and other WPC references are available at the Caltrans' "Construction Storm Water and Water Pollution Control" Web site. For the Web site, go to:

<http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm>

Water Pollution Control Manager

Assign one WPC Manager to implement the SWPPP. The WPC Manager must comply with the Permit qualifications for a QSP and a QSD. You may assign a different QSD to prepare the SWPPP.

The QSD must have the following qualifications:

1. Caltrans approved storm water management training described in Caltrans' "Construction Storm Water and Water Pollution Control" web site
2. Registration or certification described in the Permit

The QSP must meet the qualifications of the QSD or have the following certifications:

1. Caltrans approved storm water management training described in the Caltrans' "Construction Storm Water and Water Pollution Control" web site
2. Certification described in the Permit

At the job site, the WPC Manager must:

1. Be responsible for WPC work
2. Be the primary contact for WPC work
3. Oversee the maintenance of WPC practices
4. Oversee and enforce hazardous waste management practices
5. Have the authority to mobilize crews to make immediate repairs to WPC practices
6. Ensure that all employees have current water pollution control training
7. Implement the accepted SWPPP and amend the SWPPP when required

WPC Manager must oversee:

1. Inspections of WPC practices identified in the SWPPP
2. Inspections and reports for visual monitoring
3. Preparation and implementation of REAPs
4. Sampling and analysis
5. Preparation and submittal of:
 - 5.1. NAL exceedance reports
 - 5.2. NEL exceedance reports
 - 5.3. SWPPP annual certification
 - 5.4. Annual reports
 - 5.5. BMP status reports

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

General

SWPPP work includes preparing a SWPPP including a CSMP, obtaining SWPPP acceptance, amending the SWPPP, inspecting and reporting on WPC practices at the job site. The SWPPP must comply with the Preparation Manual and the Permit. The SWPPP must be submitted in place of the water pollution control program under Section 7-1.01G, "Water Pollution," of the Standard Specifications.

You may request, or the Engineer may order, changes to the WPC work. Changes may include the addition of new WPC practices. Additional WPC work will be paid for as extra work under Section 4-1.03D, "Extra Work," of the Standard Specifications.

The SWPPP must include sections as specified for the project risk level as follows:

1. For risk level 1:
 - 1.1. Schedule
 - 1.2. CSMP
2. For risk level 2:
 - 2.1. Schedule
 - 2.2. CSMP
 - 2.3. Adherence to Effluent Standards for NALs
 - 2.4. REAP
3. For risk level 3:
 - 3.1. Schedule

- 3.2. CSMP
- 3.3. Adherence to Effluent Standards for NALs and NELs
- 3.4. REAP

The SWPPP must include WPC practices for:

1. Storm water and non-stormwater from areas outside of the job site related to project work activities such as:
 - 1.1. Staging areas
 - 1.2. Storage yards
 - 1.3. Access roads
2. Activities or mobile operations related to contractor obtained NPDES permits
3. Construction support facilities

The SWPPP must include a copy of permits obtained by the Department such as Fish & Game permits, US Army Corps of Engineers permits and RWQCB 401 Certifications.

Amend the SWPPP annually and resubmit it by July 15th.

Amend the SWPPP if:

1. Changes in work activities could affect the discharge of pollutants
2. WPC practices are added by change order work
3. WPC practices are added at your discretion
4. Changes in the amount of disturbed soil are substantial
5. Objectives for reducing or eliminating pollutants in storm water discharges have not been achieved
6. There is a Permit violation

Whenever you amend the SWPPP, follow the same process specified for SWPPP acceptance.
Retain a printed copy of the accepted SWPPP at the job site.

SWPPP Schedule

The SWPPP schedule must:

1. Describe when work activities will be performed that could cause the discharge of pollutants into storm water
2. Describe WPC practices associated with each construction phase
3. Identify soil stabilization and sediment control practices for disturbed soil areas

Construction Site Monitoring Program (CSMP)

General

The QSD must prepare a CSMP as part of the SWPPP. The CSMP must be developed before starting work and be revised to reflect current construction activities as necessary.

The CSMP must include sections for the project risk level as follows:

1. For risk level 1:
 - 1.1. Visual Monitoring
 - 1.2. SAP for Non-Visible Pollutants
2. For risk level 2:
 - 2.1. Visual Monitoring
 - 2.2. SAP for Non-Visible Pollutants
 - 2.3. SAP for sediment and turbidity, including SAP for compliance with 401 Water Quality Certification
 - 2.4. SAP for pH

3. For risk level 3:
 - 3.1. Visual Monitoring
 - 3.2. SAP for Non-Visible Pollutants
 - 3.3. SAP for sediment and turbidity
 - 3.4. SAP for pH
 - 3.5. SAP for receiving waters
 - 3.6. SAP for temporary active treatment systems

Visual Monitoring

The WPC Manager must oversee the performance of visual inspections for qualifying rain events.

For each qualifying rain event, perform visual inspections and record observations during normal working hours as follows:

1. Record the time, date, and rain gauge reading
2. Observe:
 - 2.1. Within 2 days before the storm:
 - 2.1.1. Drainage areas for spills, leaks, or uncontrolled pollutants
 - 2.1.2. Proper implementation of WPC practices
 - 2.1.3. Storm water storage areas for leaks and adequate freeboard
 - 2.2. Every 24 hours during the storm:
 - 2.2.1. WPC practices for effective operation
 - 2.2.2. WPC practices needing maintenance and repair
 - 2.3. Within 2 days after the storm event:
 - 2.3.1. Discharge locations
 - 2.3.2. WPC practices to evaluate the design, implementation, and effectiveness
 - 2.3.3. To identify where additional WPC practices may be needed

Perform non-stormwater discharge visual inspections as follows:

1. At least once during each of the following periods:
 - 1.1. January through March
 - 1.2. April through June
 - 1.3. July through September
 - 1.4. October through December
2. Observe flowing and contained storm water for the presence of floating and suspended materials, sheen on the surface, discoloration, turbidity, odors, and sources of observed pollutants
3. Observe the job site for the presence of authorized and unauthorized non-stormwater discharges and their sources

The WPC Manager must prepare visual inspection reports that include the following:

1. Name of personnel performing the inspection, inspection date, and date inspection report completed
2. Storm and weather conditions
3. Locations and observations
4. Corrective actions taken

Maintain visual inspections reports at the job site as part of the SWPPP.

Sampling and Analysis Plan (SAP)

General

Include a SAP in the CSMP to monitor the effectiveness of WPC practices.

The SAP must comply with the Preparation Manual.

Assign trained personnel to collect water quality samples. Document their training in the SAP.

Describe the following water quality sampling procedures in the SAP:

1. Sampling equipment
2. Sample preparation
3. Collection
4. Field measurement methods
5. Analytical methods
6. Quality assurance and quality control
7. Sample preservation and labeling
8. Collection documentation
9. Sample shipping
10. Chain of custody
11. Data management and reporting
12. Precautions from the construction site health and safety plan
13. Laboratory selection and certifications

Whenever assigned field personnel take samples, comply with the equipment manufacturer's recommendation for collection, analysis methods, and equipment calibration.

Samples taken for laboratory analysis must follow water quality sampling procedures and be analyzed by a State-certified laboratory under 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants."

The SAP must identify the State-certified laboratory, sample containers, preservation requirements, holding times, and analysis method. For a list of State-certified laboratories, go to:

<http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx>

Include procedure for sample collection during precipitation.

Retain water quality sampling documentation and analytical results with the SWPPP at the job site.

Show pollutant sampling locations on SWPPP drawings.

If discharges or sampling locations change because of changed work activities or knowledge of site conditions, amend the SAP.

If the project is risk level 2 or risk level 3, include procedures for collecting and analyzing at least 3 samples for each day of each qualifying rain event. Describe the collection of effluent samples at all locations where the storm water is discharged off-site.

Analytical Results and Evaluation

Submit an electronic copy (in file format .xls, .txt, .csv, .dbs, or .mdb) and a printed copy of water quality analytical results, and quality assurance and quality control within 48 hours of field analysis sampling, and within 30 days for laboratory analysis. Also provide an evaluation of whether the downstream samples show levels of the tested parameter that are higher than the control sample.

Electronic water quality analysis results must have the following information:

1. Sample identification number
2. Contract number
3. Constituent
4. Reported value
5. Analytical method
6. Method detection limit
7. Reported limit

SAP for Non-Visible Pollutants

The SAP must include a description of the sampling and analysis strategy for monitoring non-visible pollutants.

The SAP must identify potential non-visible pollutants present at the job site associated with any of the following:

1. Construction materials and waste
2. Existing contamination due to historical site usage
3. Application of soil amendments, including soil stabilization materials, with the potential to change pH or contribute toxic pollutants to storm water

SWPPP drawings must show the locations planned for storage and use of potential non-visible pollutants.

The SAP must include sampling procedures for the following conditions when observed during a storm water visual inspection. For each of the following, collect at least one sample for each qualifying storm event:

1. Materials or waste containing potential non-visible pollutants that are not stored under watertight conditions
2. Materials or waste containing potential non-visible pollutants that are stored under watertight conditions, but a breach, leakage, malfunction, or spill is observed; the leak or spill has not been cleaned up before precipitation; and material or waste could discharge non-visible pollutants to surface waters or drainage system
3. Chemical applications, including fertilizer, pesticide, herbicide, methyl methacrylate concrete sealant, or non-pigmented curing compound used during precipitation or within 24 hours preceding precipitation, and could discharge pollutants to surface waters or drainage system
4. Applied soil amendments, including soil stabilization materials that could change pH levels or contribute toxic pollutants to storm water runoff and discharge pollutants to surface waters or drainage system, unless available independent test data indicates acceptable concentrations of non-visible pollutants in the soil amendment
5. Storm water runoff from an area contaminated by historical usage of the site that could discharge pollutants to surface waters or drainage systems

The SAP must provide sampling procedures and schedule for:

1. Sample collection during the first 2 hours of each rain event that generate runoff
2. Sample collection during normal working hours
3. Each non-visible pollutant source
4. Uncontaminated control sample

The SAP must identify locations for sampling downstream and control samples, and reasons for selecting those locations. Select control sample locations where the sample will not come in contact with materials, waste, or areas associated with potential non-visible pollutants or disturbed soil areas.

SAP for Sediment and Turbidity

If the project is risk level 2 or risk level 3, sample and analyze for turbidity:

Parameter	Test Method	Detection Limit (Min)	Unit
Turbidity	Field test with calibrated portable instrument	1	NTU

If the project is risk level 3 and the turbidity NEL has been exceeded, sample and analyze for SSC:

Parameter	Test Method	Detection Limit (Min)	Unit
SSC	ASTM Method D3977-97	5	Mg/L

SAP for pH

If the project is risk level 2 or risk level 3, sample and analyze for pH:

Parameter	Test Method	Detection Limit (Min)	Unit
pH	Field test with calibrated portable instrument	0.2	pH units

SAP for Receiving Waters

If the project is risk level 3, describe procedures for obtaining samples from representative and accessible locations:

1. Upstream of the discharge point
2. Downstream of the discharge point

Show receiving water sampling locations on SWPPP drawings.

If there are several discharge points, describe procedures for obtaining samples from a single upstream and a single downstream location.

Rain Event Action Plan (REAP)

REAP work includes preparing and submitting REAP forms and monitoring weather forecasts. The WPC Manager must submit a REAP to protect the job site at least 48 hours before a predicted rain event.

Prepare a REAP when the National Weather Service is predicting at least a 50 percent probability of precipitation within 72 hours.

For the REAP, use approved forms and include:

1. Site location
2. Risk level
3. Contact information including 24-hour emergency phone numbers for:
 - 3.1. WPC Manager
 - 3.2. Erosion and sediment control providers or subcontractors
 - 3.3. Storm water sampling providers or subcontractors
4. Storm Information
5. Construction phase information for:
 - 5.1. Highway Construction including active and inactive areas for work activities for building roads and structures
 - 5.2. Plant Establishment including maintenance on vegetation installed for final stabilization where areas are inactive
 - 5.3. Suspension where work activities are suspended and areas are inactive
6. Construction phase information including:
 - 6.1. Construction activities
 - 6.2. Subcontractors and trades on the job site
 - 6.3. Pre-storm activities including:
 - 6.3.1. Responsibilities of the WPC Manager

- 6.3.2. Responsibilities of the crew and crew size
 - 6.3.3. Stabilization for active and inactive disturbed soil areas
 - 6.3.4. Stockpile management
 - 6.3.5. Corrective actions taken for deficiencies identified during pre-storm visual inspection
- 6.4. Activities to be performed during storm events including:
- 6.4.1. Responsibilities of the WPC Manager
 - 6.4.2. Responsibilities of the crew and crew size
 - 6.4.3. BMP maintenance and repair
- 6.5. Description of flood contingency measures

You must have the REAP onsite at least 24 hours before a predicted rain event. A printed copy of each REAP must be at the job site as part of the SWPPP.

Implement the REAP including mobilizing crews to complete activities no later than 24 hours before precipitation occurs.

IMPLEMENTATION REQUIREMENTS

SWPPP Implementation

Obtain, install, and maintain a rain gauge at the job site. Observe and record daily precipitation.

Monitor the National Weather Service Forecast Office on a daily basis. For forecasts, go to:

<http://www.srh.noaa.gov/forecast>

Whenever you or the Engineer identifies a deficiency in the implementation of the accepted SWPPP:

1. Correct the deficiency immediately, unless the Engineer agrees to a later date for making the correction
2. Correct the deficiency before precipitation occurs

If you fail to correct the deficiency by the agreed date or before the onset of precipitation, the Department may correct the deficiency and deduct the cost of correcting the deficiency from payment.

If the Engineer determines that resources sufficient to bring the Contractor into compliance with this section "Water Pollution Control" have not been allocated, the Engineer may redirect any and all of Contractor's resources available at the project site toward this effort. In the event that the Engineer redirects resources due to Contractor's non-compliance with the provisions of this section, "Water Pollution Control", the County will not be responsible for any delays to the Contractor's schedule resulting from the reallocation, and no compensation shall be made therefor.

Continue SWPPP implementation during any temporary suspension of work activities.

Install WPC practices when an area is inactive or before predicted precipitation, whichever occurs first, and as follows:

1. By September 1 install WPC practices such that disturbed areas without WPC practices do not exceed the lesser of 50% of the total amount of area to be disturbed for the project or 10 acres
2. By September 15 install WPC practices such that disturbed areas without WPC practices do not exceed the lesser of 25% of the total amount of area to be disturbed for the project or 5 acres
3. By October 1 install WPC practices such that disturbed areas without WPC practices do not exceed the lesser of 10% of the total amount of area to be disturbed for the project or 2 acres
4. By October 15 install WPC practices such that disturbed areas without WPC practices do not exceed the lesser of 5% of the total amount of area to be disturbed for the project or 1 acres

During fall and winter do not exceed the specified amount of disturbance unless weather conditions permit and you request in writing and receive a waiver from the Engineer. Include in your request a contingency plan for installing WPC practices should weather conditions change.

Numeric Action Levels (NALs)

If the project is risk level 2 or risk level 3, then it is subject to NALs:

Parameter	Test Method	Detection Limit (Min)	Unit	Numeric Action Level
pH	Field test with calibrated portable instrument	0.2	pH units	Lower NAL = 6.5 Upper NAL = 8.5
Turbidity	Field test with calibrated portable instrument	1	NTU	250 NTU

Numeric Effluent Limits (NELs)

If the project is risk level 3, then it is subject to NELs:

Parameter	Test Method	Detection Limit (Min)	Unit	Numeric Effluent Limit
pH	Field test with calibrated portable instrument	0.2	pH units	Lower NEL = 6.0 Upper NEL = 9.0
Turbidity	Field test with calibrated portable instrument	1	NTU	500 NTU

The storm event daily average for storms up to the 5-year, 24-hour storm, must not exceed the NEL for turbidity.

The daily average sampling results must not exceed the NEL for pH.

Storm Water Sampling and Analysis Day

Storm Water Sampling and Analysis Day work includes preparation, collection, analysis, and reporting of storm water samples for turbidity, pH, and other constituents. If the project is risk level 2 or risk level 3, and there is a qualified rain event that produces runoff, comply with the project's SAP for preparation, collection, analysis, and reporting of storm water samples. Collect:

1. Samples for each non-visible pollutant source and a corresponding uncontaminated control sample
2. Samples for turbidity, pH, and other constituents as specified
3. At least 3 samples for each day of each qualifying rain event
4. Samples for all locations where the storm water is discharged off-site

Perform sample collection during:

1. First 2 hours of each qualified rain event that produces runoff
2. Normal working hours

If the project is risk level 3, obtain receiving water samples.

You are not required to physically collect samples during dangerous weather conditions such as flooding or electrical storms.

If downstream samples show increased levels, assess WPC practices, site conditions, and surrounding influences to determine the probable cause for the increase.

Inspection

The WPC Manager must oversee inspections for WPC practices identified in the SWPPP:

1. Before a forecasted storm
2. After precipitation that causes site runoff

3. At 24-hour intervals during extended precipitation
4. On a predetermined schedule, a minimum of once a week

The WPC Manager must oversee daily inspections of:

1. Storage areas for hazardous materials and waste
2. Hazardous waste disposal and transporting activities
3. Hazardous material delivery and storage activities
4. WPC practices specified under "Construction Site Management" of these special provisions

The WPC Manager must use the Storm Water Site Inspection Report provided in the Preparation Manual.

The WPC Manager must prepare BMP status reports that include the following:

1. Location and quantity of installed WPC practices
2. Location and quantity of disturbed soil for the active or inactive areas

Within 24 hours of finishing the weekly inspection, the WPC Manager must submit:

1. Copy of the completed site inspection report
2. Copy of the BMP status report

REPORTING REQUIREMENTS

Storm Water Annual Report

Storm Water Annual Report work includes certifications, monitoring and inspection results, and obtaining Storm Water Annual Report acceptance. The WPC Manager must prepare a Storm Water Annual Report. The report must:

1. Use an approved report format
2. Include project information including description and location
3. Include storm water monitoring information including:
 - 3.1. Summary and evaluation of sampling and analysis results including laboratory reports
 - 3.2. Analytical methods, reporting units, detections limits for analytical parameters
 - 3.3. Summary of corrective actions
 - 3.4. Identification of corrective actions or compliance activities that were not implemented
 - 3.5. Summary of violations
 - 3.6. Names of individuals performing storm water inspections and sampling
 - 3.7. Logistical information for inspections and sampling including location, date, time, and precipitation
 - 3.8. Visual observations and sample collection records
4. Include documentation on training for:
 - 4.1. Individuals responsible for NPDES permit compliance
 - 4.2. Individuals responsible for BMP installation, inspection, maintenance, and repair
 - 4.3. Individuals responsible for preparing, revising, and amending the SWPPP

NAL Exceedance Report

If the project is risk level 2 or risk level 3 and an effluent sample exceeds a NAL, notify the Engineer and submit a NAL Exceedance Report no later than 48 hours after the conclusion of the storm event. The report must:

1. Include the following field sampling results and inspections:
 - 1.1. Analytical methods, reporting units, and detection limits
 - 1.2. Date, location, time of sampling, visual observation and measurements
 - 1.3. Quantity of precipitation of the storm event
2. Description of BMPs and corrective actions taken to manage NAL exceedance

NEL Violation Report

If the project is risk level 3 and an NEL is exceeded, notify the Engineer and submit a NEL Violation Report within 6 hours. The report must:

1. Include the following field sampling results and inspections:

- 1.1. Analytical methods, reporting units, and detection limits
- 1.2. Date, location, time of sampling, visual observations and measurements
- 1.3. Quantity of precipitation of the storm event

2. Description of BMPs and corrective actions taken to manage NEL exceedance

If the project is risk level 2 or risk level 3, submit all sampling results to the Engineer no later than 48 hours after the conclusion of a storm event.

PAYMENT

The contract lump sum price paid for prepare storm water pollution prevention plan includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing, obtaining acceptance of, and amending the SWPPP and CSMP, inspecting water pollution control practices, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

For projects with 60 working days or less, payments for SWPPP are made as follows:

1. After the Engineer accepts the SWPPP, the Department includes up to 75 percent of the bid item price in the monthly progress estimate
2. The Department pays for the remaining percentage of the bid item price in the Proposed Final Estimate.

For projects with more than 60 working days, payments for SWPPP are made as follows:

1. After the Engineer accepts the SWPPP, the Department includes up to 50 percent of the bid item price in the monthly progress estimate
2. The Department pays 40 percent of the bid item price over the life of the contract
3. The Department pays for the remaining 10 percent of the bid item in the Proposed Final Estimate.

If risk level 2 or 3, the Department pays via agreed-upon unit price contract change order for each Rain Event Action Plan submitted. The agreed-upon unit price contract change order paid for each Rain Event Action Plan includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparation and submittal of REAP forms, and monitoring weather forecasts as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The Department pays via an agreed-upon unit price contract change order for each Storm Water Annual Report submitted. The agreed-upon unit price contract change order paid for each Storm Water Annual Report includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparation and submittal of Storm Water Annual Report as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The work to complete the final Storm Water Annual Report contract item is excluded from Section 7-1.17, "Acceptance of Contract," of the Standard Specifications.

If risk level 2 or 3, the Department pays via agreed-upon unit price contract change order for storm water sampling and analysis day includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparation, collection, analysis, and reporting of storm water samples per qualifying rain event as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

You may request or the Engineer may order laboratory analysis of storm water samples. Laboratory analysis of storm water samples will be paid for as extra work under Section 4-1.03D, "Extra Work," of the Standard Specifications.

The Department does not pay for the preparation, collection, laboratory analysis, and reporting of storm water samples for non-visible pollutants if WPC practices are not implemented before precipitation or if a failure of a WPC practice is not corrected before precipitation.

The Department does not pay for implementation of WPC practices in areas outside the highway right-of-way not specifically provided for in the plans or in the special provisions. The Department does not pay for WPC practices installed at your construction support facilities.

As stated in the separate special provisions for individual WPC practices, the Department will pay for WPC practices under Force Account change order, unless the WPC practice is required under Construction Site Management.

If the Contractor requires the use of WPC practices not specified within these special provisions to achieve compliance with local, state or federal water pollution control regulations, the implementation, maintenance and removal of these unspecified WPC practices shall be at the Contractor's expense.

For each failure to submit a completed Storm Water Annual Report, the Department withholds \$10,000. This withhold is in addition to other withholds under Section 9-1.053 "Performance Failure Withholds," of the Standard Specifications.

Each failure to comply with any part of these special provisions and each failure to implement water pollution control practices are considered separate performance failures.

10-1.04 CONSTRUCTION SITE MANAGEMENT

GENERAL

Summary

This work includes controlling potential sources of water pollution before they come in contact with storm water systems or watercourses.

Control material pollution and manage waste and non-stormwater at the job site by implementing effective handling, storage, use, and disposal practices.

For information on documents specified in these special provisions, refer to the Caltrans Preparation Manual, Dewatering Guide, and BMP Manual.

Preparation Manual, Dewatering Guide, and BMP Manual are available from the Caltrans Construction Storm Water and Water Pollution Control web site at:

<http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm>

Definitions and Abbreviations

active and inactive areas: (1) Active areas have soil disturbing work activities occurring at least once within 14 days, and (2) Inactive areas are areas that have not been disturbed for at least 15 days.

BMP Manual: Caltrans Construction Site Best Management Practices (BMP) Manual.

CDPH: California Department of Public Health

Dewatering Guide: Caltrans' Field Guide to Construction Site Dewatering.

ELAP: Environmental Laboratory Accreditation Program

minor spills: Small quantities of oil, gasoline, paint, or other material that are small enough to be controlled by a first responder upon discovery of the spill.

MSDS: Material Safety Data Sheet

Preparation Manual: Caltrans Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual.

semi-significant spills: Spills that can be controlled by a first responder with help from other personnel.

significant or hazardous spills: Spills that cannot be controlled by construction personnel.

WPC: Water Pollution Control

WPC Manager: Water Pollution Control Manager as defined under "Water Pollution Control" of these special provisions.

Submittals

Submit the following:

1. MSDS at least 5 days before material is used or stored
2. Monthly inventory records for material used or stored
3. Copy of written approval to discharge into a sanitary sewer system at least 5 days before beginning discharge activities

Quality Control and Assurance

Not Used

MATERIALS

Not Used

CONSTRUCTION

Spill Prevention and Control

Implement spill and leak prevention procedures for chemicals and hazardous substances stored at the job site. If you spill or leak chemicals or hazardous substances at the job site, you are responsible for all associated cleanup costs and related liability.

As soon as it is safe, contain and clean up spills of petroleum products, sanitary and septic waste substances listed under CFR Title 40, Parts 110, 117, and 302.

Minor Spills

Clean up minor spills using the following procedures:

1. Contain the spread of the spill
2. Recover the spilled material by absorption
3. Clean the contaminated area
4. Dispose of the contaminated material promptly and properly

Semi-significant Spills

Clean up semi-significant spills immediately by the following procedures:

1. Contain the spread of the spill
2. Recover the spilled material using absorption whenever a spill occurs on a paved surface or an impermeable surface
3. Contain the spill with an earthen dike and dig up the contaminated soil for disposal whenever a spill occurs on soil
4. If the spill occurs during precipitation, cover the spill with plastic or other material to prevent contaminated runoff
5. Dispose of the contaminated material promptly and properly

Significant or Hazardous Spills

Immediately notify qualified personnel of significant or hazardous spills. Do not let construction personnel attempt to clean up the spill until qualified staff have arrived. Do the following:

1. Notify the Engineer and follow up with a written report
2. Obtain the services of a spills contractor or hazardous material team immediately
3. Notify the local emergency response team by dialing 911 and county officials at the emergency phone numbers kept at the job site
4. Notify the Governor's Office of Emergency Services Warning Center at (805) 852-7550

5. Notify the National Response Center at (800) 424-8802 regarding spills of Federal reportable quantities under CFR Title 40, Parts 110, 119, and 302
6. Notify other agencies as appropriate, including:
 - 6.1. Fire Department
 - 6.2. Public Works Department
 - 6.3. Coast Guard
 - 6.4. Highway Patrol
 - 6.5. City Police or County Sheriff Department
 - 6.6. Department of Toxic Substances
 - 6.7. California Division of Oil and Gas
 - 6.8. Cal OSHA
 - 6.9. Regional Water Resources Control Board

Report minor, semi-significant, and significant spills to the WPC Manager. The WPC Manager must notify the Engineer immediately. The WPC Manager must oversee and enforce proper spill prevention and control measures.

Prevent spills from entering storm water runoff before and during cleanup. Do not bury spills or wash spills with water.

Keep material or waste storage areas clean, well organized, and equipped with enough cleanup supplies for the material being stored.

Material Management

General

Material must be delivered, used, and stored for this job in a way that minimizes or eliminates discharge of material into the air, storm drain systems, and watercourses.

Implement the practices described under "Material Management" of these special provisions while taking delivery of, using, or storing any of the following materials:

1. Hazardous chemicals including acids, lime, glues, adhesives, paints, solvents, and curing compounds
2. Soil stabilizers and binders
3. Fertilizers
4. Detergents
5. Plaster
6. Petroleum materials including fuel, oil, and grease
7. Asphalt components and concrete components
8. Pesticides and herbicides

Employees trained in emergency spill cleanup procedures must be present during the unloading of hazardous materials or chemicals.

If practicable, use less hazardous materials.

Material Storage

Throughout project construction and implementation, hazardous materials shall be stored at an approved storage facility at least 100 feet from any surface waters.

Use the following material storage procedures:

1. Store liquids, petroleum materials, and substances listed in CFR Title 40, Parts 110, 117, and 302 as specified by the Department, and place them in secondary containment facilities.

2. Secondary containment facilities must be impervious to the materials stored there for a minimum contact time of 72 hours.
3. Cover secondary containment facilities during non-working days and when precipitation is predicted. Secondary containment facilities must be adequately ventilated.
4. Keep secondary containment facility free of accumulated rainwater or spills. After precipitation, or in the event of spills or leaks, collect accumulated liquid and place into drums within 24 hours. Handle these liquids as hazardous waste under "Hazardous Waste" of these special provisions unless testing determines them to be nonhazardous.
5. Do not store incompatible materials, such as chlorine and ammonia, in the same secondary containment facility.
6. Store materials in the original containers with the original material labels maintained in legible condition. Replace damaged or illegible labels immediately.
7. Secondary containment facilities must have the capacity to contain precipitation from a 24-hour-long, 25-year storm, and 10 percent of the aggregate volume of all containers, or entire volume of the largest container within the facility, whichever is greater.
8. Store bagged or boxed material on pallets. Protect bagged or boxed material from wind and rain during non-working days and while precipitation is predicted.
9. Provide sufficient separation between stored containers to allow for spill cleanup or emergency response access. Storage areas must be kept clean, well organized, and equipped with cleanup supplies appropriate for the materials being stored.
10. Repair or replace perimeter controls, containment structures, covers, and liners as necessary. Inspect storage areas before and after precipitation, and at least weekly during other times.

Stockpile Management

Use the following stockpile management procedures:

1. Reduce or eliminate potential water pollution from stockpiled material including soil, paving material, and pressure treated wood.
2. Locate stockpiles:
 - 2.1. If within the floodplain, at least 100 feet from concentrated flows of storm water, drainage courses, and inlets unless approved
 - 2.2. If outside the floodplain, at least 50 feet from concentrated flows of storm water, drainage courses, and inlets unless approved

Install WPC practices when a stockpile area is inactive or before predicted precipitation, whichever occurs first.

Active and inactive soil stockpiles must be:

1. Covered with soil stabilization measures, plastic sheeting, or geosynthetic fabric
2. Surrounded with a linear sediment barrier

Portland cement concrete rubble, AC, HMA, AC and HMA rubble, aggregate base or aggregate sub-base stockpiles must be:

1. Covered with plastic sheeting, or geosynthetic fabric
2. Surrounded with a linear sediment barrier

Pressure treated wood stockpiles must be:

1. Placed on pallets
2. Covered with impermeable material

Cold mix asphalt concrete stockpiles must be:

1. Placed on impervious surface
2. Covered with impermeable material
3. Protected from run-on and runoff

Control wind erosion year round under Section 10, "Dust Control" of the Standard Specifications.

Repair or replace linear sediment barriers and covers as needed to keep them functioning properly. If sediment accumulates to 1/3 of the linear sediment barrier height, remove the sediment.

Waste Management

Solid Waste

Do not allow litter or debris to accumulate anywhere at the job site, including storm drain grates, trash racks, and ditch lines. Pick up and remove trash and debris from the job site at least once a week. The WPC Manager must monitor solid waste storage and disposal procedures at the job site.

If practicable, recycle nonhazardous job site waste and excess material. If recycling is not practicable, disposal must comply with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way" of the Standard Specifications.

Furnish enough closed-lid dumpsters of sufficient size to contain any solid waste generated by work activities. When the refuse reaches the fill line, empty the dumpsters. Dumpsters must be watertight. Do not wash out dumpsters at the job site. Furnish additional containers and pick up dumpsters more frequent during the demolition phase of construction.

Solid waste includes:

1. Brick
2. Mortar
3. Timber
4. Metal scraps
5. Sawdust
6. Pipe
7. Electrical cuttings
8. Non-hazardous equipment parts
9. Styrofoam and other packaging materials
10. Vegetative material and plant containers from highway planting
11. Litter and smoking material, including litter generated randomly by the public
12. Other trash and debris

Furnish and use trash receptacles at the job site yard, field trailers, and locations where workers gather for lunch and breaks.

Hazardous Waste

Use hazardous waste management practices if waste is generated at the job site from the following substances:

1. Petroleum products
2. Asphalt products
3. Concrete curing compound
4. Pesticides
5. Acids
6. Paints
7. Stains
8. Solvents
9. Wood preservatives and treated posts
10. Roofing tar
11. Road flares
12. Lime
13. Glues and adhesives
14. Materials classified as hazardous by California Code of Regulations, Title 22, Division 4.5; or listed in CFR Title 40, Parts 110, 117, 261, or 302

The WPC Manager must oversee and enforce hazardous waste management practices. Minimize the production of hazardous materials and hazardous waste at the job site. If damaged, repair or replace perimeter controls, containment structures, and covers.

If hazardous material levels are unknown, use a laboratory certified by ELAP under CDPH to sample and test waste to determine safe methods for storage and disposal.

Separate potentially hazardous waste from nonhazardous waste at the job site. Hazardous waste must be handled, stored, and disposed of under California Code of Regulations, Title 22, Division 4.5, Section 66262.34; and in CFR Title 49, Parts 261, 262, and 263.

Store hazardous waste in sealed containers constructed and labeled with the contents and date accumulated under California Code of Regulations, Title 22, Division 4.5; and in CFR Title 49, Parts 172, 173, 178, and 179. Keep hazardous waste containers in temporary containment facilities under "Material Storage" of these special provisions.

Furnish containers with adequate storage volume at convenient locations for hazardous waste collection. Do not overfill hazardous waste containers. Do not mix hazardous waste. Do not allow potentially hazardous waste to accumulate on the ground. Store containers of dry waste that are not watertight on pallets. Store hazardous waste away from storm drains, watercourses, moving vehicles, and equipment.

Clean water based or oil based paint from brushes or equipment within a contained area and in a way that does not contaminate soil, watercourses, and storm drain systems. Handle and dispose of the following as hazardous waste: paints, thinners, solvents, residues, and sludges that cannot be recycled or reused. When thoroughly dry, dispose of the following as solid waste: dry, latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths.

Dispose of hazardous waste within 90 days of being generated. Use a licensed hazardous waste transporter to take hazardous waste to a Class I Disposal Site. Submit a copy of uniform hazardous waste manifest forms within 24 hours of transporting hazardous waste.

The WPC Manager must inspect the following daily:

1. Storage areas for hazardous materials and waste
2. Hazardous waste disposal and transporting activities
3. Hazardous material delivery and storage activities

Contaminated Soil

Identify contaminated soil from spills or leaks by noticing discoloration, odors, or differences in soil properties. Soil with evidence of contamination must be sampled and tested by a laboratory certified by ELAP.

If levels of contamination are found to be hazardous, handle and dispose of the soil as hazardous waste.

Prevent the flow of water, including ground water, from mixing with contaminated soil by using one or a combination of the following measures:

1. Berms
2. Cofferdams
3. Grout curtains
4. Freeze walls
5. Concrete seal course

If water mixes with contaminated soil and becomes contaminated, sample and test the water using a laboratory certified by ELAP. If levels of contamination are found to be hazardous, handle and dispose of the water as hazardous waste.

Concrete Waste

Use practices that will prevent the discharge of portland cement concrete, AC, or HMA waste into storm drain systems or watercourses.

Collect and dispose of portland cement concrete, AC, or HMA waste at locations where:

1. Concrete material, including grout, is used

2. Concrete dust and debris result from demolition
3. Sawcutting, coring, grinding, grooving, or hydro-concrete demolition of portland cement concrete, AC, or HMA creates a residue or slurry
4. Concrete truck or other concrete-coated equipment is cleaned at the job site

Sanitary and Septic Waste

Do not bury or discharge wastewater from sanitary or septic systems within Department right-of-way. The WPC Manager must inspect sanitary or septic waste storage and monitor disposal procedures at least weekly. Sanitary facilities that discharge to the sanitary sewer system must be properly connected and free from leaks. Place sanitary facilities at least 50 feet away from storm drains, watercourses, and flow lines.

Obtain written approval from the local health agency, city, county, and sewer district before discharging from a sanitary or septic system directly into a sanitary sewer system, and submit a copy to the Engineer. Comply with local health agency provisions while using an on-site disposal system.

Liquid Waste

Use practices that will prevent job site liquid waste from entering storm drain systems or watercourses. Liquid waste includes the following:

1. Drilling slurries or fluids
2. Grease-free or oil-free wastewater or rinse water
3. Dredgings, including liquid waste from drainage system cleaning
4. Liquid waste running off a surface including wash or rinse water
5. Other non-stormwater liquids not covered by separate permits

Hold liquid waste in structurally sound, leak proof containers such as:

1. Roll-off bins
2. Portable tanks

Liquid waste containers must be of sufficient quantity and volume to prevent overflow, spills and leaks.

Store containers:

1. At least 50 feet from moving vehicles and equipment
2. If within the floodplain, at least 100 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved
3. If outside the floodplain, at least 50 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved

Remove and dispose of deposited solids from sediment traps under "Solid Waste" of these special provisions unless the Engineer approves another method.

Liquid waste may require testing to determine hazardous material content before disposal.

Drilling fluids and residue must be disposed of outside the highway right-of-way.

If an approved location is available within the job site, fluids and residue exempt under California Code of Regulations, Title 23, Section 2511(g) may be dried by evaporation in a leak proof container. Dispose of remaining solid waste under "Solid Waste" of these special provisions.

Non-Storm Water Management

Water Control and Conservation

Manage water used for work activities to prevent erosion or discharge of pollutants into storm drain systems or watercourses. Obtain approval before washing anything at the job site with water that could discharge into a storm drain system or watercourse. Report discharges immediately.

If water is used at the job site, implement water conservation practices. Inspect irrigation areas. Adjust watering schedules to prevent erosion, excess watering, or runoff. Shut off water source to broken lines, sprinklers, or valves, and

repair breaks within 24 hours. If possible, reuse water from waterline flushing for landscape irrigation. Sweep and vacuum paved areas; do not wash them with water.

Direct job site water runoff, including water from water line repair, to areas where it can infiltrate into the ground and not enter storm drain systems or watercourses. Do not allow spilled water to escape water truck filling areas. If possible, direct water from off-site sources around the job site. Minimize the contact of off-site water with job site water.

Illegal Connection and Discharge Detection and Reporting

Inspect the job site and the site perimeter before starting work for evidence of illegal connections, discharges, or dumping. After starting work, inspect the job site and perimeter on a daily schedule.

Whenever illegal connections, discharges, or dumping are discovered, notify the Engineer immediately. Take no further action unless ordered by the Engineer. Assume unlabeled or unidentifiable material is hazardous.

Look for the following evidence of illegal connections, discharges, or dumping:

1. Debris or trash piles
2. Staining or discoloration on pavement or soils
3. Pungent odors coming from drainage systems
4. Discoloration or oily sheen on water
5. Stains or residue in ditches, channels or drain boxes
6. Abnormal water flow during dry weather
7. Excessive sediment deposits
8. Nonstandard drainage junction structures
9. Broken concrete or other disturbances near junction structures

Vehicle and Equipment Cleaning

Limit vehicle and equipment cleaning or washing at the job site except what is necessary to control vehicle tracking or hazardous waste. Notify the Engineer before cleaning vehicles and equipment at the job site with soap, solvents, or steam. Contain and recycle or dispose of resulting waste under "Liquid Waste" or "Hazardous Waste" of these special provisions, whichever is applicable. Do not use diesel to clean vehicles or equipment, and minimize the use of solvents.

Clean or wash vehicles and equipment in a structure equipped with disposal facilities. If using a structure is not possible, clean or wash vehicles and equipment in an outside area. The outside area must be:

1. Paved with AC, HMA, or concrete paving
2. Surrounded by a containment berm
3. Equipped with a sump to collect and dispose of wash water
4. If within the floodplain, located at least 100 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved
5. If outside the floodplain, located at least 50 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved

When washing vehicles or equipment with water, use as little water as possible. Hoses must be equipped with a positive shutoff valve.

Discharge liquid from wash racks to a recycle system or to another approved system. Remove liquids and sediment as necessary.

The WPC Manager must inspect vehicle and equipment cleaning facilities:

1. Daily if vehicle and equipment cleaning occurs daily
2. Weekly if vehicle and equipment cleaning does not occur daily

Vehicle and Equipment Fueling and Maintenance

If practicable, perform maintenance on vehicles and equipment off the job site.

If fueling or maintenance must be done at the job site, designate a site, or sites, and obtain approval before using. Minimize mobile fueling or maintenance.

If vehicle and equipment fueling and maintenance must be done at the job site, areas for the following activities must be:

1. On level ground
2. Protected from storm water run-on
3. If within the floodplain, located at least 100 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved
4. If outside the floodplain, located at least 50 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved

Use containment berms or dikes around the fueling and maintenance area. Keep adequate quantities of absorbent spill cleanup material and spill kits in the fueling and maintenance area and on fueling trucks. Dispose of spill cleanup material and kits immediately after use. Use drip pans or absorbent pads during fueling or maintenance.

Fueling or maintenance activities must not be left unattended. Fueling nozzles must be equipped with an automatic shutoff control. Vapor recovery fueling nozzles must be used where required by the Air Quality Management District. When not in use, nozzles must be secured upright. Do not top-off fuel tanks.

Recycle or properly dispose of used batteries and tires.

The WPC Manager must inspect vehicle and equipment maintenance and fueling areas:

1. Daily when vehicle and equipment maintenance and fueling occurs daily
2. Weekly when vehicle and equipment maintenance and fueling does not occur daily

The WPC Manager must inspect vehicles and equipment at the job site for leaks and spills on a daily schedule. Operators must inspect vehicles and equipment each day of use.

If leaks cannot be repaired immediately, remove the vehicle or equipment from the job site.

Material and Equipment Used Over Water

Place drip pans and absorbent pads under vehicles or equipment used over water. Keep an adequate supply of spill cleanup material with the vehicle or equipment. If the vehicle or equipment will be idle for more than one hour, place drip pans or plastic sheeting under the vehicle or equipment on docks, barges, or other surfaces over water.

Furnish watertight curbs or toe boards on barges, platforms, docks, or other surfaces over water to contain material, debris, and tools. Secure material to prevent spills or discharge into water due to wind.

Structure Removal Over or Adjacent to Water

Do not allow demolished material to enter storm water systems or watercourses. Use approved covers and platforms to collect debris. Use attachments on equipment to catch debris on small demolition activities. Empty debris catching devices daily and handle debris under "Waste Management" of these special provisions.

The WPC Manager must inspect demolition sites within 50 feet of storm water systems or watercourses daily.

Paving, Sealing, Sawcutting, Grooving, and Grinding Activities

Prevent the following materials from entering storm drain systems or water courses:

1. Cementitious material
2. Asphaltic material
3. Aggregate or screenings
4. Grinding, grooving, or sawcutting residue
5. Pavement chunks
6. Shoulder backing
7. Methacrylate

Cover drainage inlets and use linear sediment barriers to protect downhill watercourses until paving, sealing, sawcutting, grooving, or grinding activities are completed and excess material has been removed. Cover drainage inlets and manholes during the application of seal coat, tack coat, slurry seal, or fog seal.

If precipitation is predicted, limit paving, sawcutting, and grinding to places where runoff can be captured.

Do not start seal coat, tack coat, slurry seal, or fog seal activities if precipitation is predicted during the application or curing period. Do not excavate material from existing roadways during precipitation.

Use a vacuum to remove slurry immediately after slurry is produced. Do not allow slurry to run onto lanes open to traffic or off the pavement.

Collect residue from portland cement concrete grinding and grooving activities with a vacuum attachment on the grinding machine. Do not leave any residue on the pavement or allow the residue to flow across the pavement.

If approved, material excavated from existing roadways may be stockpiled under "Stockpile Management" of these special provisions.

Do not coat asphalt trucks and equipment with substances that contain soap, foaming agents, or toxic chemicals.

When paving equipment is not in use, park over drip pans or plastic sheeting with absorbent material to catch drips.

Thermoplastic Striping and Pavement Markers

Thermoplastic striping and preheating equipment shutoff valves must work properly at all times. Do not preheat, transfer, or load thermoplastic within 50 feet of drainage inlets or watercourses. Do not fill a preheating container above a level that is 6 inches below the top. Truck beds must be cleaned daily of scraps or melted thermoplastic.

Do not unload, transfer, or load bituminous material for pavement markers within 50 feet of drainage inlets or watercourses. Release all pressure from a melting tank before removing the lid to fill or service. Do not fill a melting tank above a level that is 6 inches below the top.

Collect bituminous material from the roadway after marker removal.

Pile Driving

Keep spill kits and cleanup material at pile driving locations. Pile driving equipment must be parked over drip pans, absorbent pads, or plastic sheeting with absorbent material. If precipitation is predicted, protect pile driving equipment by parking on plywood and covering with plastic.

Store pile driving equipment when not in use. Stored pile driving equipment must be:

1. Kept on level ground
2. Protected from storm water run-on
3. If within the floodplain, at least 100 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved
4. If outside the floodplain, at least 50 feet from concentrated flows of storm water, drainage courses, watercourses, and storm drain inlets unless approved

If practicable, use vegetable oil instead of hydraulic fluid.

The WPC Manager must inspect the pile driving area for leaks and spills:

1. Daily when pile driving occurs daily
2. Weekly when pile driving does not occur daily

Concrete Curing

Do not overspray chemical curing compound. Minimize the drift by spraying as close to the concrete as possible. Cover drainage inlets before applying the curing compound.

Minimize the use and discharge of water by using wet blankets or similar methods to maintain moisture while curing concrete.

Concrete Finishing

Collect and dispose of water and solid waste from high-pressure water blasting. Cover drainage inlets within 50 feet before sandblasting. Minimize drift of dust and blast material by keeping the nozzle close to the surface of the concrete. The blast residue may contain hazardous material.

Inspect concrete finishing containment structures for damage before each day of use and before predicted precipitation. Remove liquid and solid waste from containment structures after each work shift.

Sweeping

Sweeping must be done using hand or mechanical methods such as vacuuming.

Monitor paved areas and roadways within the job site for sediment and debris generating activities such as:

1. Clearing and grubbing
2. Earthwork
3. Trenching
4. Roadway structural section work
5. Vehicles entering and leaving the job site
6. Soil disturbing work
7. Work that causes offsite tracking of material

If sediment or debris is observed, perform sweeping:

1. Within:
 - 1.1. 8 hours of predicted rain
 - 1.2. 1 hour if sediment or debris is observed during activities that requires sweeping
 - 1.3. 24 hours, if sediment and debris is observed during activities that do not require sweeping
2. On paved roads at job site entrances and exit locations
3. On paved areas within the job site that flow to storm drains or receiving waters

You may stockpile collected material at the job site according to the accepted SWPPP. Remove collected material including sediment from paved shoulders, drain inlets, curbs and dikes, and other drainage areas. If stockpiled, dispose of collected material at least once per week.

You may dispose of sediment within the job site that you collected during sweeping activities. Protect disposal areas against erosion.

Remove and dispose of trash collected during sweeping under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way" of the Standard Specifications.

Dewatering

Dewatering consists of discharging accumulated storm water, ground water, or surface water from excavations or temporary containment facilities.

If dewatering and discharging activities are specified under a work item such as "Temporary Active Treatment System" or "Dewatering and Discharge," perform dewatering work as specified in the section involved.

If dewatering and discharging activities are not specified under a work item and you will be performing dewatering activities, you must:

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1. Submit a Dewatering and Discharge Plan under Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications and "Water Pollution Control" of these special provisions at least 10 days before starting dewatering activities. The Dewatering and Discharge Plan must include:
 - 1.1. Title sheet and table of contents
 - 1.2. Description of dewatering and discharge activities detailing locations, quantity of water, equipment, and discharge points
 - 1.3. Estimated schedule for dewatering and discharge (start and end dates, intermittent or continuous)
 - 1.4. Discharge alternatives such as dust control or percolation
 - 1.5. Visual monitoring procedures with inspection log
2. Conduct dewatering activities under Caltrans "Field Guide for Construction Dewatering."
3. Ensure that any dewatering discharge does not cause erosion, scour, or sedimentary deposits that could impact natural bedding materials.
4. Discharge the water within the project limits. Dispose of the water in the same way as specified for material in Section 7-1.13 "Disposal of Material Outside the Highway Right of Way" of the Standard Specification if it cannot be discharged within project limits due to site constraints.
5. Do not discharge storm water or non-stormwater that has an odor, discoloration other than sediment, an oily sheen, or foam on the surface. Notify the Engineer immediately upon discovering any such condition.

The WPC manager must inspect dewatering activities:

1. Daily when dewatering work occurs daily
2. Weekly when dewatering work does not occur daily

PAYMENT

The contract lump sum price paid for construction site management includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in spill prevention and control, material management, waste management, non-stormwater management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous waste resulting from your activities, as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

10-1.05 TEMPORARY TACKED STRAW

GENERAL

Summary

This work includes applying, maintaining, and removing temporary tacked straw. Tacked straw uses a mixture of tackifier, fiber, and water to stabilize active and nonactive disturbed soil areas.

The SWPPP must describe and include the use of temporary tacked straw as a water pollution control practice for soil stabilization.

Submittals

At least 5 business days before applying tacked straw, submit:

1. Material Safety Data Sheet for the tackifier.
2. Product label describing the tackifier as an erosion control product.
3. List of pollutant indicators and potential pollutants for the use of temporary tacked straw. Pollutant indicators are described under "Sampling and Analysis Plan for Non-Visible Pollutants" in the Preparation Manual.
4. Determination of acute and chronic toxicity for aquatic organisms conforming to EPA methods for the tackifier.
5. Composition of ingredients including chemical formulation.

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for:

1. Tackifier
2. Fiber

Quality Control and Assurance

Retain and submit records of temporary tacked straw applications including:

1. Compliance with specified rates
2. Application area
3. Application time
4. Quantity

MATERIALS

Tackifier

The tackifier must be:

1. Nonflammable
2. Nontoxic to aquatic organisms
3. Free from growth or germination inhibiting factors
4. Either a plant-based product or a polymeric-emulsion blend

Tackifier classified as a plant-based product must be:

1. A natural high molecular weight polysaccharide
2. A high viscosity hydrocolloid that is miscible in water
3. Functional for at least 180 days
4. Labeled as either guar, psyllium, or starch

Guar must be:

1. A guar gum based product derived from the ground endosperm of the guar plant, cyanmopsis tetragonolobus
2. Treated with dispersant agents for easy mixing
3. Able to be diluted at the rate of 1 to 5 pounds per 100 gallons of water

Psyllium must be:

1. Made of the finely ground muciloid coating of plantago ovata or plantago ispaghula seeds
2. Able to dry and form a firm but rewettable membrane

Starch must be a non-ionic, water-soluble granular material derived from corn, potato, or other plant-based source.

Tackifier classified as polymeric emulsion blend must be:

1. A liquid or dry powder formulation
2. Anionic with a residual monomer content that is at most 0.05 percent by weight
3. Functional for at least 180 days
4. A prepackaged product labeled as containing one of the following as the primary active ingredient of the polymeric emulsion blend:
 - 4.1 Acrylic copolymers and polymers
 - 4.2 Polymers of methacrylates and acrylates
 - 4.3 Copolymers of sodium acrylates and acrylamides
 - 4.4 Polyacrylamide (PAM) and copolymer of acrylamide
 - 4.5 Hydrocolloid polymers

Fiber

Fiber must be wood fiber, cellulose fiber, alternate fiber, or a combination of these fibers as specified.

Fiber must be:

1. Free from lead paint, printing ink, varnish, petroleum products, seed germination inhibitors, or chlorine bleach
2. Free from synthetic or plastic materials
3. At most 7 percent ash

If wood fiber is specified, wood fiber must be:

1. Long strand, whole wood fibers, thermo-mechanically processed from clean, whole wood chips
2. Not made from sawdust, cardboard, paper, or paper byproducts
3. At least 25 percent of fibers 3/8 inch long
4. At least 40 percent held on a No. 25 sieve

If cellulose fiber is specified, cellulose fiber must be made from natural or recycled pulp fiber, such as wood chips, sawdust, newsprint, chipboard, corrugated cardboard, or a combination of these materials.

If alternate fiber is specified, alternate fiber must be:

1. Long strand, whole natural fibers made from clean straw, cotton, corn, or other natural feed stock
2. At least 25 percent of fibers 3/8 inch long
3. At least 40 percent held on a No. 25 sieve

Coloring Agent

Use a biodegradable, nontoxic coloring agent free from copper, mercury, and arsenic to ensure the tacked straw contrasts with the application area.

Straw

Straw must comply with Section 20-2.06, "Straw," of the Standard Specifications and be:

1. Rice, wheat, or barley. Wheat and barley straw must be derived from irrigated crops.
2. Free of plastic, glass, metal, rocks, and refuse or other deleterious material.

CONSTRUCTION

The quantity of tackifier in the mixture must be as recommended by the manufacturer.

The ratio of water to fiber and tackifier in the mixture must be as recommended by the manufacturer. The proportions of various erosion control materials may be changed by the Engineer to meet field conditions.

Apply tacked straw materials in separate applications in the following sequence:

1. Apply straw:
 - 1.1. At the rate of 2 tons per acre (slope measurement)
 - 1.2. To extend to the edge of retaining walls, dikes, paving and to within 4 feet from the flow line of paved and unpaved drainage ditches
 - 1.3. Using mechanical, pneumatic, or manual methods
2. Apply tackifier and fiber mixture:
 - 2.1. At application rate indicated:

Material	Application Rate lbs/acre
Wood Fiber	2500

2.2. During dry weather or at least 24 hours before predicted rain.

Do not apply tacked straw if:

1. Water is standing on or moving across the soil surface
2. Soil is frozen
3. Air temperature is below 40°F during the tackifier curing period unless allowed by the manufacturer and approved by the Engineer

Do not over-spray tacked straw onto the traveled way, sidewalks, lined drainage channels, or existing vegetation.

Maintenance

Reapply tacked straw within 24 hours of discovering visible erosion, unless the Engineer approves a longer period.

Temporary tacked straw disturbed or displaced by the Contractor's vehicles, equipment, or operations must be reapplied at the Contractor's expense.

Cleanup, repair, removal, disposal, or replacement due to improper installation or the Contractor's negligence are not included in the cost for performing maintenance.

Removal

Remove tacked straw by mechanically blending it into the soil with track laying equipment, disking, or other approved method.

MEASUREMENT AND PAYMENT

Full compensation for furnishing all labor, materials (including straw, tackifier, and fiber), tools, equipment, and incidentals, and for doing all the work involved in applying and maintaining temporary tacked straw, complete in place, including removal of tacked straw as specified in the Standard Specifications and as directed by the Engineer shall be paid for via Force Account Change Order. Payment of Subsistence and Travel allowance shall be excluded from this Force Account Change Order.

10-1.06 STREET SWEEPING

GENERAL

Summary

This work includes street sweeping.

The SWPPP must describe and include the use of street sweeping as a water pollution control practice for sediment control and tracking control.

Submittals

At least 5 business days before starting clearing and grubbing, earthwork, or other activities with the potential for tracking sediment or debris, submit:

1. Number of sweepers described in the SWPPP
2. Type of sweeper technology

Quality Control and Assurance

Retain and submit records of street sweeping including:

1. Quantity of sweeping waste disposal
2. Sweeping times and locations

CONSTRUCTION

Street Sweepers

Sweepers must use one of these technologies:

1. Mechanical sweeper followed by a vacuum-assisted sweeper
2. Vacuum-assisted dry (waterless) sweeper
3. Regenerative-air sweeper

Operation

Street sweeping must be done at:

1. Paved roads at job site entrance and exit locations
2. Paved areas within the job site that flow to storm drains or water bodies

Street sweeping must be done:

1. During clearing and grubbing activities
2. During earthwork activities
3. During trenching activities
4. During roadway structural section activities
5. When vehicles are entering and leaving the job site
6. After soil disturbing activities
7. After observing offsite tracking of material

Monitor paved areas and roadway within the jobsite. Street sweeping must be done:

1. Within 1 hour, if sediment or debris is observed during activities that require sweeping
2. Within 8 hours of predicted rain
3. Within 24 hours, if sediment or debris is observed during activities that do not require sweeping

At least 1 sweeper must be on the job site at all times when sweeping work is required. The sweeper must be in good working order.

Perform street sweeping to minimize dust. If dust generation is excessive or sediment pickup is ineffective, use water or a vacuum.

You may stockpile collected material on the jobsite according to the approved SWPPP. Dispose of collected material at least once per week.

Material collected during street sweeping must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Your WPCM must inspect paved roads at job site access points:

1. Daily if earthwork and other sediment or debris generating activities occur daily
2. Weekly if earthwork and other sediment or debris generating activities do not occur daily
3. When the National Weather Service predicts precipitation with a probability of at least 30 percent

MEASUREMENT AND PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in street sweeping, including disposal of collected material as specified in the Standard Specifications and as directed by the Engineer will be considered as included in the contract lump sum price paid for construction site management and no additional compensation will be allowed therefor.

10-1.07 TEMPORARY EROSION CONTROL BLANKET

GENERAL

Summary

This work includes constructing, maintaining, and removing temporary erosion control blanket. Temporary erosion control blanket is used to cover and protect disturbed soil areas and soil from erosion by wind or water. Temporary erosion control blanket reduces channel erosion by protecting against scour created by concentrated flow.

The SWPPP must describe and include the use of temporary erosion control blanket as a water pollution control practice for soil stabilization.

Submittals

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for erosion control blanket.

If you substitute the steel wire staple with an alternative attachment device, submit a sample of the device for approval at least 5 business days before installation.

MATERIALS

Erosion Control Blanket

Erosion control blanket must be:

1. Described as a rolled erosion control product (RECP)
2. Classified as temporary and degradable
3. Machine-made mats
4. Provided in rolled strips
5. Classified by the Erosion Control Technology Council (ECTC)

Erosion control blanket classified as temporary and degradable must be one of the following:

1. Double net excelsior blanket:
 - 1.1. Classified as ECTC Type 2D
 - 1.2. Classified as an erosion control blanket
 - 1.3. Designed to last for at least one year after installation
 - 1.4. With a Universal Soil Loss Equation (USLE) C-Factor of not more than 0.20 at a 2:1 (horizontal:vertical) slope
 - 1.5. With 80 percent of the wood excelsior fibers being 6 inches or longer
 - 1.6. Capable to withstand a maximum shear stress of 1.75 pounds per square foot under ASTM D 6460
 - 1.7. With a minimum tensile strength of 75 pounds per foot under ASTM D 5035
 - 1.8. With top and bottom surfaces covered with lightweight non-synthetic netting
2. Double net straw and coconut blanket:
 - 2.1. Classified as ECTC Type 2D
 - 2.2. Classified as an erosion control blanket
 - 2.3. Designed to last for at least one year after installation
 - 2.4. With a USLE C-Factor of not more than 0.20 at a 2:1 (horizontal:vertical) slope
 - 2.5. Comprised of 70 percent straw and 30 percent coconut fiber
 - 2.6. Capable to withstand a maximum shear stress of 1.75 pounds per square foot under ASTM D 6460
 - 2.7. With a minimum tensile strength of 75 pounds per foot under ASTM D 5035
 - 2.8. With top and bottom surfaces covered with lightweight non-synthetic netting
3. Jute netting:

- 4.1. Classified as ECTC Type 3B
 - 4.2. Classified as an open weave textile and have from 14 to 20 strands per foot in each direction
 - 4.3. Designed to last for at least one year after installation
 - 4.4. With a USLE C-Factor of not more than 0.25 at a 1.5:1 (horizontal:vertical) slope
 - 4.5. Comprised of 100 percent unbleached and undyed spun yarn made of jute fiber
 - 4.6. With an average open area from 63 to 70 percent
 - 4.7. From 48 to 72 inches in width
 - 4.8. Capable to withstand a maximum shear stress of 2.0 pounds per square foot under ASTM D6460
 - 4.9. With a minimum tensile strength of 100 pounds per foot under ASTM D 5035
 - 4.10. From 0.90 to 1.20 pounds per square yard in weight
4. Coir netting:

- 4.1. Classified as ECTC Type 4
- 4.2. Classified as an open weave textile and from 13 to 18 strands per foot in each direction
- 4.3. Designed to last for at least three years after installation
- 4.4. With a USLE C-Factor of not more than 0.25 at a 1:1 (horizontal:vertical) slope
- 4.5. Comprised of 100 percent unbleached and undyed spun coir yarn made of coconut fiber
- 4.6. With an average open area from 63 to 70 percent
- 4.7. From 72 to 158 inches in width
- 4.8. Capable to withstand a maximum shear stress of 2.25 pounds per square foot under ASTM D6460
- 4.9. With a minimum tensile strength of 125 pounds per foot under ASTM D 5035
- 4.10. From 1.20 to 1.67 pounds per square yard in weight

Staples

You may use an alternative attachment device such as a geosynthetic pins or plastic pegs to install erosion control blanket.

CONSTRUCTION

Before placing erosion control blanket, remove obstructions including rocks, clods, and debris greater than 1 inch in diameter from the ground.

If fiber rolls are to be placed in the same area as erosion control blankets, install the blankets before placing the fiber rolls.

If hydroseeding is to be done in the same area as erosion control blanket:

1. You must hydroseed before placing the double net excelsior or straw and coconut blankets
2. You may hydroseed before or after placing the jute or coir netting

If temporary erosion control blanket is installed on disturbed soil areas including embankment and excavation slopes:

1. Place the blanket loosely on the embankment or excavation slope with the longitudinal joints perpendicular to the slope contour lines
3. Place the blanket on the upper portion of the slope overlapping the blanket on the lower portion of the slope for transverse joints
4. Place the blanket on the side of the prevailing wind shall overlapping the blanket on the downwind side of the slope for longitudinal joints
2. Overlap and staple the longitudinal and transverse joints
5. Secure the ends of the blanket in key trenches

If temporary erosion control blanket is installed in area of concentrated runoff including ditches and swales:

1. Place the blanket loosely along the ditch or swale with the longitudinal edges and joints parallel to the centerline of the ditch or swale
2. Place the blanket on the upper portion of the slope overlapping the blanket on the lower portion of the slope for transverse joints

3. Secure transverse joints of blankets in intermediate joint trenches
4. Overlap and staple the longitudinal and transverse joints
5. Secure the ends of the blanket in intermediate and key trenches

MAINTENANCE

Remove sediment deposits, trash, and debris from temporary erosion control blanket as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Maintain temporary erosion control blanket by:

1. Removing sediment from the surface of the blanket when it is deeper than 2 inches
2. Repairing or replacing the blanket when the area treated with temporary erosion control blanket becomes exposed or exhibits visible erosion
3. Repairing or replacing the erosion control blanket when washouts occur between joints or beneath the erosion control blanket
4. Repairing or replacing the erosion control when it becomes detached, torn, or unraveled

Repair temporary erosion control blanket within 24 hours of discovering damage unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace temporary erosion control blanket, repair erosion control blanket at your expense.

The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

REMOVAL

When the Engineer determines that temporary erosion control blanket is not required, it must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary erosion control blanket must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing, maintaining and removing temporary erosion control blanket, complete in place, including trench excavation and backfill, and removal of temporary erosion control blanket as specified in the Standard Specifications and as directed by the Engineer shall be paid for via Force Account Change Order. Payment of Subsistence and Travel allowance shall be excluded from this Force Account Change Order.

10-1.08 TEMPORARY COVER

GENERAL

Summary

This work includes constructing, maintaining, and removing temporary cover.

The SWPPP must describe and include the use of temporary cover as a water pollution control practice for soil stabilization and stockpile management.

Submittals

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for:

Green Valley Road at Tennessee Creek – Bridge Replacement Project
Contract No. PW 09-30407 / CIP No. 77109
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1. Gravel-filled bag fabric
2. Temporary cover fabric

If you substitute a material in the following list, submit a sample of the alternative material for approval at least 5 business days before installation:

1. Alternative restrainer
2. Alternative linear sediment barrier

MATERIALS

Geosynthetic Fabrics

Geosynthetic fabrics must consist of one of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Sample under ASTM D 4354, Procedure C.

Test under ASTM D 4759. All properties are based on Minimum Average Roll Value (MARV).

Identify, store, and handle under ASTM D 4873.

Protect geosynthetics from moisture, sunlight and damage during shipping and storage. Label each unit with the manufacturer's name, identifying information and product identification.

Gravel-filled bag fabric must comply with:

Specification	Requirements
Grab breaking load 1-inch grip, lb, min. in each direction	205
Apparent elongation percent, min., in each direction	50
Water Flow Rate max. average roll value, gallons per minute/square foot	80-150
Permittivity l/sec., min	1.2
Apparent opening size max. average roll value, U.S. Standard sieve size	40-80
Ultraviolet Degradation percent of original unexposed grab breaking load 500 hr, minimum	70

The temporary cover fabric must be geosynthetic cover fabric, plastic sheeting, or a combination of both.

Temporary cover fabric must be either:

1. Plastic sheeting consisting of a single-ply geomembrane material, 10 mils thick, that complies with ASTM D 5199
2. Geosynthetic cover fabric that complies with the following properties:

Specification	Requirements
Grab breaking load 1-inch grip, lb, min. in each direction	200
Apparent elongation percent, min., in each direction	50
Water Flow Rate max. average roll value, gallons per minute/square foot	75-120
Permittivity 1/sec., min	0.08
Apparent opening size max. average roll value, U.S. Standard sieve size	100
Ultraviolet Degradation percent of original unexposed grab breaking load 500 hr, minimum	70

Gravel

Gravel for gravel-filled bags must be:

1. From 3/8 to 3/4 inch in diameter
2. Clean and free from clay balls, organic matter, and other deleterious materials

Gravel-filled Bags

Gravel-filled bags must:

1. Be made from gravel-filled bag fabric.
2. Have inside dimensions from 24 to 32 inches in length, and from 16 to 20 inches in width.
3. Have the opening bound to retain the gravel. The opening must be sewn with yarn, bound with wire, or secured with a closure device.
4. Weigh from 30 to 50 pounds when filled with gravel.

Restrainers

Restrainers must be used to secure the cover fabric or plastic sheeting to the surface of the slope or stockpile.

Restrainers must be one of the following:

1. Made of gravel-filled bags that are roped together and spaced no more than a 6 feet apart
2. Made of wooden lath and anchor restrainers as shown on the plans and the following:
 - 2.1 Wooden lath must be 2" x 4" x 8', made from fir or pine, and comply with Section 20-2.12, "Lumber," of the Standard Specifications
 - 2.2 Anchor restrainers must be made from steel reinforcing bars and spaced no more than 4 feet apart along the wooden lath
3. An approved alternate method

Rope

Rope must be at least 3/8 inch in diameter.

Rope must be one of the following:

1. Biodegradable, such as sisal or manila
2. Nondegradable, such as polypropylene or nylon

Linear Sediment Barrier

Linear sediment barriers consist of one or more of the following:

1. Gravel bag berm

2. Earthen berm
3. Approved alternate method

CONSTRUCTION

Temporary Cover Fabric

Install temporary cover fabric by:

1. Placing the temporary cover fabric loosely on the slope or stockpile with the longitudinal edges perpendicular to the slope contours
2. Placing the temporary cover fabric on the upper portion of the slope to overlap cover fabric on the lower portion of the slope
3. Placing the temporary cover fabric on the side of the prevailing wind to overlap the cover fabric on the downwind side of the slope
4. Anchoring the perimeter edge of the temporary cover fabric in key trenches
5. Overlapping edges of the temporary cover fabric by at least 2 feet
6. Placing restrainers at the overlap area and along the toe of the slope. Between overlaps, the restrainers must be spaced a maximum of 8 feet on center.
7. Ensuring that, if anchor restraints are used, the leg of the steel reinforcing bar pierces the temporary cover fabric and holds the wooden lath firmly against the surface of the slope or stockpile.

Linear Sediment Barrier

Protect excavation and embankment slopes with linear sediment barrier by:

1. Preventing run-on and concentrated flows from damaging the slopes
2. Placing the barrier parallel to the slope contour at the toe of the slope
3. Angling the last 6 feet of the barrier up-slope

Protect stockpiles with linear sediment barrier by:

1. Preventing run-on and concentrated flows from touching the stockpiled material
2. Surrounding the stockpile with a linear sediment barrier
3. Adding more linear sediment barrier within 24 hours of adding more material to the stockpile

If earthen berms are used as a linear sediment barrier, they must be:

1. At least 8 inches high and 36 inches wide
2. Compacted by hand or mechanical method

If gravel bag berms are used as a linear sediment barrier:

1. Place gravel bags as a single layer
2. Place gravel bags end-to-end to eliminate gaps

If you need to increase the height of the gravel bag berm:

1. Increase height by adding rows of gravel-filled bags
2. Stack bags in a way that the bags in the top row overlap the joints in the lower row
3. Stabilize berm by adding rows at the bottom

If you remove the temporary cover to do other work, replace and secure temporary cover within one hour.

MAINTENANCE

Maintain temporary cover to minimize exposure of the slopes or stockpile and prevent movement of the material beyond the linear sediment barrier.

Maintain temporary cover by:

1. Relocating and securing restrainers to keep the erosion control blankets in place. Temporary cover fabric that breaks free must be immediately secured.
2. Repairing or replacing the temporary cover fabric when the area covered by temporary cover becomes exposed or exhibits visible erosion.
3. Repairing or replacing the linear sediment barrier when washouts occur between joints or beneath the linear sediment barrier.
4. Repairing or replacing the temporary cover fabric when it becomes detached, torn, or unraveled.

Repair temporary cover within 24 hours of discovering damage unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace temporary cover, repair temporary cover at your expense.

REMOVAL

When the Engineer determines that temporary cover is not required, it must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary cover must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing and maintaining temporary cover for stockpile slopes, complete in place, including restrainers and removal of temporary cover, as specified in the Standard Specifications and as directed by the Engineer will be considered as included in the contract lump sum price paid for construction site management and no additional compensation will be allowed therefor.

Payment for temporary cover for slopes other than stockpile slopes shall be paid for via Force Account Change Order. Payment of Subsistence and Travel allowance shall be excluded from this Force Account Change Order.

10-1.09 TEMPORARY CONCRETE WASHOUT (PORTABLE)

GENERAL

Summary

This work includes removal and disposal of concrete waste by furnishing, maintaining, and removing portable temporary concrete washouts.

SWPPP must describe and include the use of a portable temporary concrete washout as a water pollution control practice for waste management and materials pollution control.

Submittals

At least 5 business days before concrete activities start, submit:

1. Name and location of off-site concrete waste disposal facility to receive concrete waste
2. Copy of permit issued by RWQCB for off-site commercial disposal facility
3. Copy of license for off-site commercial disposal facility
4. Copy of permit issued by state or local agency having jurisdiction over disposal facility if disposal site is located outside of the State of California

Quality Control and Assurance

Retain and submit records of disposed concrete waste including:

1. Weight tickets
2. Delivery and removal of temporary concrete washouts

MATERIALS

Portable Temporary Concrete Washout

Portable temporary concrete washout must:

1. Be a commercially available watertight container.
2. Have sufficient capacity to contain all liquid and concrete waste generated by washout activities without seepage or spills.
3. Have at least 55-gallon capacity.
4. Be labeled for the exclusive use as a concrete waste and washout facility. Stencil "Concrete Waste material" in 3-inch high letters on white background. Top of stenciling must be 12 inches from the top of the container.

Concrete Washout Sign

Concrete washout sign must comply with the provisions in Section 12-3.06B, "Portable Signs" of the Standard Specifications and:

1. Be approved by the Engineer
2. Consist of base, framework, and sign panel
3. Be made of plywood
4. Be minimum 2' x 4' in size
5. Read "Concrete Washout" with 3 inches high black letters on white background

CONSTRUCTION

Placement

Place portable temporary concrete washouts at job site:

1. Before concrete placement activities start
2. In the immediate area of concrete work as approved by the Engineer
3. No closer than 50 feet from storm drain inlets, open drainage facilities, ESAs, or watercourses
4. Away from construction traffic or public access areas

Install a concrete washout sign adjacent to each portable temporary concrete washout location.

Operation

Collect and dispose of portland cement concrete, AC, or HMA waste at locations where:

1. Concrete material, including grout, is used
2. Concrete dust and debris result from demolition
3. Sawcutting, coring, grinding, grooving, or hydro-concrete demolition of portland cement concrete, AC, or HMA creates a residue or slurry
4. Concrete truck or other concrete-coated equipment is cleaned at the job site

Relocate portable temporary concrete washouts as needed for concrete construction work.

Replace portable temporary concrete washouts when filled to capacity. Do not fill higher than 6 inches below rim.

Your WPC manager must inspect portable temporary concrete washouts:

1. Daily if concrete work occurs daily
2. Weekly if concrete work does not occur daily

Maintenance

When relocating or transporting a portable temporary concrete washout within the job site, secure it to prevent spilling of concrete waste material. If any spilled material is observed, remove spilled material and place it into portable temporary concrete washout.

Removal

Dispose of concrete waste material at a facility specifically licensed to receive solid concrete waste, liquid concrete waste, or both. When portable temporary concrete washout is full, remove and dispose of concrete waste within 2 days.

PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in furnishing, maintaining, and removing the portable temporary concrete washout, including removal and disposal of concrete waste, as specified in the Standard Specifications and as directed by the Engineer will be considered as included in the contract lump sum price paid for construction site management and no additional compensation will be allowed therefor.

10-1.10 TEMPORARY CHECK DAM

GENERAL

Summary

This work includes constructing, maintaining, and removing temporary check dams.

The SWPPP must describe and include the use of temporary check dams as a water pollution control practice for soil stabilization in flow conveyances.

Submittals

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for:

1. Fiber rolls
2. Gravel-filled bag fabric

MATERIALS

Fiber Rolls

Fiber rolls must:

1. Last for at least one year after installation
2. Be Type 1 or Type 2

If specified, Type 1 fiber rolls must be:

1. Made from an erosion control blanket:
 - 1.1. Classified by the Erosion Control Technology Council (ECTC) as ECTC 2D
 - 1.2. With a Universal Soil Loss Equation (USLE) C-Factor of not more than 0.20 at a 2:1 (horizontal:vertical) slope
 - 1.3. Capable to withstand a maximum shear stress of 1.75 pounds per square foot under ASTM D 6460
 - 1.4. With a minimum tensile strength of 75 pounds per foot under ASTM D 5035
 - 1.5. With top and bottom surfaces covered with lightweight non-synthetic netting
 - 1.6. Either of the following:
 - 1.6.1. Double net straw and coconut blanket with 70 percent straw and 30 percent coconut fiber
 - 1.6.2. Double net excelsior blanket with 80 percent of the wood excelsior fibers being 6 inches or longer
2. Rolled along the width
3. Secured with natural fiber twine every 6 feet and 6 inches from each end
4. Finished to be either:
 - 4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 0.5 pounds per linear foot

4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 2 pounds per linear foot

If specified, Type 2 fiber rolls must:

1. Be filled with rice or wheat straw, wood excelsior, or coconut fiber
2. Be covered with a biodegradable jute, sisal, or coir fiber netting
3. Have the netting secured tightly at each end
4. Be finished to be either:
 - 4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 1.1 pounds per linear foot
 - 4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 3 pounds per linear foot

Wood Stakes

Wood stakes must be:

1. Untreated fir, redwood, cedar, or pine and cut from sound timber
2. Straight and free of loose or unsound knots and other defects which would render the stakes unfit for use
3. Pointed on the end to be driven into the ground

For fiber rolls, wood stakes must be at least:

1. 1" x 1" x 24" in size for Type 1 installation
2. 1" x 2" x 24" in size for Type 2 installation

Rope

For Type 2 installation, rope must:

1. Be biodegradable, such as sisal or manila
2. Have a minimum diameter of 1/4 inch

Gravel-filled Bag Fabric

Geosynthetic fabric for temporary gravel bag berm must consist of one of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Sample under ASTM D 4354, Procedure C.

Test under ASTM D 4759. All properties are based on Minimum Average Roll Value (MARV).

Identify, store, and handle under ASTM D 4873.

Protect geosynthetics from moisture, sunlight and damage during shipping and storage. Label each unit with the manufacturer's name, identifying information and product identification.

Gravel-filled bag fabric must comply with:

Specification	Requirements
Grab breaking load 1-inch grip, lb, min. in each direction	205
Apparent elongation percent, min., in each direction	50
Water Flow Rate max. average roll value, gallons per minute/square foot	80-150
Permittivity 1/sec., min	1.2
Apparent opening size max. average roll value, U.S. Standard sieve size	40-80
Ultraviolet Degradation percent of original unexposed grab breaking load 500 hr, minimum	70

Gravel

Gravel for gravel-filled bags must be:

1. From 3/8 to 3/4 inch in diameter
2. Clean and free from clay balls, organic matter, and other deleterious materials.

Gravel-filled Bags

Gravel-filled bags must:

1. Be made from gravel-filled bag fabric.
2. Have inside dimensions from 24 to 32 inches in length, and from 16 to 20 inches in width.
3. Have the opening bound to retain the gravel. The opening must be sewn with yarn, bound with wire, or secured with a closure device.
4. Weigh from 30 to 50 pounds when filled with gravel.

CONSTRUCTION

Before placing temporary check dam, remove obstructions including rocks, clods, and debris greater than one inch in diameter from the ground.

If check dams are to be placed in the same areas as erosion control blankets, then install the blankets before placing the check dams.

Temporary check dams must be:

1. Placed perpendicular to the centerline of the ditch or drainage line
2. Installed with sufficient spillway depth to prevent flanking of concentrated flow around the ends of the check dam
3. Type 1 for lashed fiber rolls, Type 2 for gravel-filled bags, or a combination:
 - 3.1. If the ditch is lined with concrete or hot mix asphalt, use temporary check dam (Type 2)
 - 3.2. If the ditch is unlined, you may use temporary check dam (Type 1) or (Type 2)

Temporary check dam (Type 1) must be:

1. Secured with rope and notched wood stakes.
2. Installed by driving stakes into the soil until the notch is even with the top of the fiber roll.
3. Installed by lacing the rope between stakes and over the fiber roll. Knot the rope at each stake.
4. Tightened by driving the stakes further into the soil forcing the fiber roll against the surface of the ditch or drainage line.

Temporary check dam (Type 2) must be:

1. Placed as a single layer of gravel bags
2. End-to-end to eliminate gaps

If you need to increase the height of the temporary check dam (Type 2):

1. Increase height by adding rows of gravel-filled bags
2. Stack bags in a way that the bags in the top row overlap the joints in the lower row
3. Stabilize dam by adding rows of bags at the bottom

MAINTENANCE

Maintain temporary check dams to provide sediment holding capacity and to reduce concentrated flow velocities.

Remove sediment deposits, trash, and debris from temporary check dams as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Maintain temporary check dams by:

1. Removing sediment from behind the check dam when sediment is 1/3 the height of the check dam above ground
2. Repairing or adjusting the check dams when scour and other evidence of concentrated flow occur beneath the fiber roll
3. Repairing or replacing the fiber rolls or gravel-filled bags when they become split, torn, or unraveled
4. Adding stakes when the fiber rolls slump or sag
5. Replacing broken or split wood stakes

Repair temporary check dams within 24 hours of discovering damage unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace temporary check dams, repair temporary check dams at your expense.

The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

REMOVAL

When the Engineer determines that temporary check dams are not required, they must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary check dams must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing, maintaining and removing the temporary check dams, complete in place, including removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance, as specified in the Standard Specifications and as directed by the Engineer shall be paid for via Force Account Change Order. Payment of Subsistence and Travel allowance shall be excluded from this Force Account Change Order.

10-1.11 TEMPORARY FIBER ROLL

GENERAL

Summary

This work includes constructing, maintaining, and removing temporary fiber roll.

The SWPPP must describe and include the use of temporary fiber roll as a water pollution control practice for sediment control.

Submittals

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for fiber roll.

MATERIALS

Fiber Roll

Fiber roll must:

1. Last for at least one year after installation
2. Be Type 1 or Type 2

If specified, Type 1 fiber roll must be:

1. Made from an erosion control blanket:
 - 1.1. Classified by the Erosion Control Technology Council (ECTC) as ECTC 2D
 - 1.2. With a Universal Soil Loss Equation (USLE) C-Factor of not more than 0.20 at a 2:1 (horizontal:vertical) slope
 - 1.3. Capable to withstand a maximum shear stress of 1.75 pounds per square foot under ASTM D 6460
 - 1.4. With a minimum tensile strength of 75 pounds per foot under ASTM D 5035
 - 1.5. With top and bottom surfaces covered with lightweight non-synthetic netting
 - 1.6. That complies with one of the following:
 - 1.6.1. Double net straw and coconut blanket with 70 percent straw and 30 percent coconut fiber
 - 1.6.2. Double net excelsior blanket with 80 percent of the wood excelsior fibers being 6 inches or longer
2. Rolled along the width
3. Secured with natural fiber twine every 6 feet and 6 inches from each end
4. Finished to be either:
 - 4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 0.5 pounds per linear foot
 - 4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 2 pounds per linear foot

If specified, Type 2 fiber roll must:

1. Be filled with rice or wheat straw, wood excelsior, or coconut fiber
2. Be covered with a biodegradable jute, sisal, or coir fiber netting
3. Have the netting secured tightly at each end
4. Be finished to be either:
 - 4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 1.1 pounds per linear foot
 - 4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 3 pounds per linear foot

Wood Stakes

Wood stakes must be:

1. Untreated fir, redwood, cedar, or pine and cut from sound timber
2. Straight and free of loose or unsound knots and other defects which would render the stakes unfit for use
3. Pointed on the end to be driven into the ground

For fiber roll, wood stakes must be at least:

1. 1" x 1" x 24" in size for Type 1 installation
2. 1" x 2" x 24" in size for Type 2 installation

Rope

For Type 2 installation, rope must:

1. Be biodegradable, such as sisal or manila
2. Have a minimum diameter of 1/4 inch

CONSTRUCTION

Before placing fiber roll, remove obstructions including rocks, clods, and debris greater than one inch in diameter from the ground.

If fiber roll is to be placed in the same area as erosion control blanket, install the blanket before placing the fiber roll. For other soil stabilization practices such as hydraulic mulch or compost, place the fiber roll and then apply the soil stabilization practice.

Place fiber roll on slopes at the following spacing unless the plans show a different spacing:

1. 10 feet apart for slopes steeper than 2:1 (horizontal:vertical)
2. 15 feet apart for slopes from 2:1 to 4:1 (horizontal:vertical)
3. 20 feet apart for slopes from 4:1 to 10:1 (horizontal:vertical)
4. 50 feet apart for slopes flatter than 10:1 (horizontal:vertical)

Place fiber roll parallel to the slope contour. For any 20 foot section of fiber roll, do not allow the fiber roll to vary more than 5 percent from level.

Type 1 and Type 2 fiber roll may be installed using installation method Type 1, Type 2, or a combination:

For installation method Type 1, install fiber roll by:

1. Placing in a furrow that is from 2 to 4 inches deep
2. Securing with wood stakes every 4 feet along the length of the fiber roll
3. Securing the ends of the fiber roll by placing a stake 6 inches from the end of the roll
4. Driving the stakes into the soil so that the top of the stake is less than 2 inches above the top of the fiber roll

For installation method Type 2, install fiber roll by:

1. Securing with rope and notched wood stakes.
2. Driving stakes into the soil until the notch is even with the top of the fiber roll.
3. Lacing the rope between stakes and over the fiber roll. Knot the rope at each stake.
4. Tightening the fiber roll to the surface of the slope by driving the stakes further into the soil.

MAINTENANCE

Maintain temporary fiber roll to provide sediment holding capacity and to reduce runoff velocities.

Remove sediment deposits, trash, and debris from temporary fiber roll as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Maintain temporary fiber roll by:

1. Removing sediment from behind the fiber roll when sediment is 1/3 the height of the fiber roll above ground
2. Repairing or adjusting the fiber roll when rills and other evidence of concentrated runoff occur beneath the fiber roll.
3. Repairing or replacing the fiber roll when they become split, torn, or unraveled

4. Adding stakes when the fiber roll slump or sag
5. Replacing broken or split wood stakes

Repair temporary fiber roll within 24 hours of discovering damage unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace temporary fiber roll, repair temporary fiber roll at your expense.

The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

REMOVAL

When the Engineer determines that temporary fiber roll is not required, they must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary fiber roll must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing, maintaining and removing the temporary fiber roll, complete in place, including removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance, as specified in the Standard Specifications and as directed by the Engineer shall be paid for via Force Account Change Order. Payment of Subsistence and Travel allowance shall be excluded from this Force Account Change Order.

10-1.12 TEMPORARY SILT FENCE

GENERAL

Summary

This work includes installing, maintaining, and removing temporary silt fence.

The SWPPP must describe and include the use of temporary silt fence as a water pollution control practice for sediment control.

Submittals

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for silt fence fabric.

MATERIALS

Silt Fence Fabric

Geosynthetic fabric for temporary silt fence must consist of one of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Sample under ASTM D 4354, Procedure C.

Test under ASTM D 4759. All properties must be based on Minimum Average Roll Value (MARV). Identify, store, and handle under ASTM D 4873.

Protect geosynthetics from moisture, sunlight, and damage during shipping and storage. Label each unit with the manufacturer's name, identifying information, and product identification.

Silt fence fabric must comply with:

Property	ASTM Designation	Specification	
		Woven	Non-woven
Grab breaking load 1-inch grip, lb, min. in each direction	D 4632	120	120
Apparent elongation percent, min., in each direction	D 4632	15	50
Water Flow Rate max. average roll value, gallons per minute/square foot	D 4491	10-50	100-150
Permittivity l/sec., min.	D 4491	0.05	0.05
Apparent opening size max. average roll value, U.S. Standard sieve size	D 4751	30	30
Ultraviolet Degradation percent of original unexposed grab breaking load 500 hr, minimum	D 4595	70	

Posts

Posts must be wood or metal.

Wood posts must be:

1. Untreated fir, redwood, cedar, or pine and cut from sound timber
2. Straight and free of loose or unsound knots and other defects that would render the stakes unfit for use
3. Pointed on the end to be driven into the ground
4. At least 2" x 2" in size, and 4 feet long

Metal posts must:

1. Be made of steel.
2. Have a "U," "T," "L," or other cross sectional shape that can resist failure from lateral loads.
3. Be pointed on the end to be driven into the ground.
4. Weigh at least 0.75-pound per foot.
5. Be at least 4 feet long.
6. Have a safety cap attached to the exposed end. The safety cap must be orange or red plastic and fit snugly to the metal post.

CONSTRUCTION

Silt fence must be:

1. Constructed with silt fence fabric, posts, and fasteners
2. Prefabricated or assembled at the job site

Silt fence fabric must be attached to posts using these methods:

1. If prefabricated silt fence is used, posts must be inserted into sewn pockets
2. If assembled on the job site:
 - 2.1. If wood posts are used, fasteners must be staples or nails
 - 2.2. If steel posts are used, fasteners must be tie wires or locking plastic fasteners
 - 2.3. Spacing of the fasteners must be no more than 8 inches apart

Place silt fence parallel to the slope contour. For any 50 foot section of silt fence, do not allow the elevation at the base of the fence to vary more than 1/3 of the fence height.

Install silt fence by:

1. Placing the bottom of the fabric in a trench that is 6 inches deep
2. Securing with posts placed on the downhill side of the fabric
3. Backfilling the trench with soil and hand or mechanically tamping to secure the fabric in the trench

If you reinforce the silt fence fabric with wire or plastic mesh, you may increase the post spacing to a maximum of 10 feet. The field-assembled reinforced silt fence must be able to retain saturated sediment without collapsing.

Connect silt fence sections by:

1. Joining separate sections of silt fence to form reaches that are no more than 500 feet long
2. Securing the end posts of each section by wrapping the tops of the posts with at least two wraps of 16-gage diameter tie wire
3. Ensuring that each reach is a continuous run of silt fence from end to end or from an end to an opening, including joined panels

If you mechanically push the silt fence fabric vertically through the soil, you must demonstrate that the silt fence fabric will not be damaged and will not slip out of the soil, resulting in sediment passing under the silt fence fabric.

MAINTENANCE

Maintain temporary silt fence to provide sediment holding capacity and to reduce runoff velocities.

Remove sediment deposits, trash, and debris from temporary silt fence as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Maintain temporary silt fence by:

1. Removing sediment from behind the silt fence when sediment is 1/3 the height of the silt fence above ground
2. Repairing or adjusting the silt fence when rills and other evidence of concentrated runoff occur beneath the silt fence fabric
3. Repairing or replacing the silt fence fabric when it become split, torn, or unraveled

Repair temporary silt fence within 24 hours of discovering damage unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace temporary silt fence, repair temporary silt fence at your expense.

The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

REMOVAL

When the Engineer determines that temporary silt fence is not required, remove and dispose of fence under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary silt fence must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing, maintaining and removing temporary silt fence, complete in place, including removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other

ground disturbance, as specified in the Standard Specifications and as directed by the Engineer shall be paid for via Force Account Change Order. Payment of Subsistence and Travel allowance shall be excluded from this Force Account Change Order.

10-1.13 TEMPORARY GRAVEL BAG BERM

GENERAL

Summary

This work includes constructing, maintaining, and removing temporary gravel bag berm.

The SWPPP must describe and include the use of temporary gravel bag berm as a water pollution control practice for sediment control.

Submittals

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for gravel-filled bag fabric.

MATERIALS

Gravel-filled Bag Fabric

Geosynthetic fabric for temporary gravel bag berm must consist of one of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Sample under ASTM D 4354, Procedure C.

Test under ASTM D 4759. All properties must be based on Minimum Average Roll Value (MARV).

Identify, store, and handle under ASTM D 4873.

Protect geosynthetics from moisture, sunlight, and damage during shipping and storage. Label each unit with the manufacturer's name, identifying information, and product identification.

Gravel-filled bag fabric must comply with:

Specification	Requirements
Grab breaking load 1-inch grip, lb, min. in each direction	205
Apparent elongation percent, min., in each direction	50
Water Flow Rate max. average roll value, gallons per minute/square foot	80-150
Permittivity 1/sec., min	1.2
Apparent opening size max. average roll value, U.S. Standard sieve size	40-80
Ultraviolet Degradation percent of original unexposed grab breaking load 500 hr, minimum	70

Gravel

Gravel for gravel-filled bags must be:

1. From 3/8 to 3/4 inch in diameter
2. Clean and free from clay balls, organic matter, and other deleterious materials

Gravel-filled Bags

Gravel-filled bags must:

1. Be made from gravel-filled bag fabric.
2. Have inside dimensions from 24 to 32 inches in length, and from 16 to 20 inches in width.
3. Have the opening bound to retain the gravel. The opening must be sewn with yarn, bound with wire, or secured with a closure device.
4. Weigh from 30 to 50 pounds when filled with gravel.

CONSTRUCTION

Before constructing temporary gravel bag berm, remove obstructions including rocks, clods, and debris greater than 1 inch in diameter from the ground.

Temporary gravel bag berm must:

1. Be placed as a single layer of gravel bags to create a linear sediment barrier
2. Be placed end-to-end to eliminate gaps
3. Be placed parallel to the slope contour
4. Have the last 6 feet of the gravel bag berm angled up-slope

If you need to increase the height of the temporary gravel bag berm:

1. Increase height by adding rows of gravel-filled bags
2. Stack bags in a way that the bags in the top row overlap the joints in the lower row
3. Stabilize berm by adding rows at the bottom

If used within shoulder area, gravel-filled bags must be placed behind temporary railing (Type K).

MAINTENANCE

Maintain temporary gravel bag berm to provide sediment holding capacity and to reduce runoff velocities.

Remove sediment deposits, trash, and debris from temporary gravel bag berm as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Maintain temporary gravel bag berm by:

1. Removing sediment from behind the gravel bag berm when sediment is 1/3 the height of the gravel bag berm above ground
2. Repairing or adjusting the gravel-filled bags when rills and other evidence of concentrated runoff occur beneath the gravel-filled bags
3. Repairing or replacing the gravel-filled bags when they become split, torn, or unraveled

Repair temporary gravel bag berm within 24 hours of discovering damage unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace temporary gravel bag berm, repair temporary gravel bag berm at your expense.

The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

REMOVAL

When the Engineer determines that temporary gravel bag berm is not required, they must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary gravel bag berm must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing, maintaining and removing the temporary gravel bag berm, complete in place, including removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance, as specified in the Standard Specifications and as directed by the Engineer shall be paid for via Force Account Change Order. Payment of Subsistence and Travel allowance shall be excluded from this Force Account Change Order.

10-1.14 TEMPORARY CONSTRUCTION ENTRANCE

GENERAL

Summary

This work includes constructing, maintaining, and removing temporary construction entrance to provide temporary access.

The SWPPP must describe and include the use of temporary construction entrance as a water pollution control practice for tracking control.

Temporary construction entrance must be Type 1.

Submittals

Submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for:

1. Temporary entrance fabric
2. Rock

Submit details for alternatives at least 5 business days before installation. You may propose alternatives for the following items:

1. Alternative sump
2. Alternative corrugated steel panels

If the Engineer approves, you may eliminate the sump.

MATERIALS

Temporary Entrance Fabric

Temporary entrance fabric must comply with Section 88-1.06 A "Rock Slope Protection" of the Standard Specifications and shall be Class 10.

Rock

Rock must be Type A or Type B.

Rock (Type A) must comply with:

1. Requirements under Section 72-2.02, "Materials," of the Standard Specifications
2. Following sizes:

Square Screen Size (inch)	Percentage Passing	Percentage Retained
6	100	0
3	0	100

Rock (Type B) must be Railway Ballast Number 25. Do not use blast furnace slag. Railway Ballast Number 25 must comply with:

1. Description in AREMA Manual for Railway Engineering.
2. Following sizes:

Nominal Size Square Opening	Percentage Passing								
	3"	2-1/2"	2"	1-1/2"	1"	3/4"	1/2"	3/8"	No. 4
2-1/2"-3/8"	100	80-100	60-85	50-70	25-50	-	5-20	0-10	0-3

3. Following properties:

Specification	Requirements
Percent material passing No. 200 sieve, max. ASTM: C 117	1.0
Bulk specific gravity, min. ASTM: C 127	2.60
Absorption, percent min. ASTM: C 127	1.0
Clay lumps and friable particles, percent max. ASTM: C 142	0.5
Degradation, percent max. ASTM: C 535	30
Soundness (Sodium Sulfate), percent max. ASTM: C 88	5.0
Flat, elongated particles, or both, percent max. ASTM: D 4791	5.0

Corrugated Steel Panels

Corrugated steel panels must:

1. Be made of steel.
2. Be pressed or shop welded
3. Have a slot or hook for connecting panels together

CONSTRUCTION

Prepare location for temporary construction entrance by:

1. Removing vegetation to ground level and clear away debris
2. Grading ground to uniform plane
3. Grading ground surface to drain
4. Removing sharp objects that may damage fabric
5. Compacting the top 1.5 feet of soil to at least 90 percent relative compaction

If temporary entrance (Type 1) is specified, use rock (Type A).

If temporary construction entrance (Type 2) is specified, use Rock (Type B) under corrugated steel panels.

Use at least 6 corrugated steel panels for each entrance. Couple panels together.

Install temporary construction entrance by:

1. Positioning fabric along the length of the entrance
2. Overlapping sides and ends of fabric by at least 12 inches
3. Spreading rock over fabric in the direction of traffic
4. Covering fabric with rock within 24 hours
5. Keeping a 6 inch layer of rock over fabric to prevent damage to fabric by spreading equipment

Do not drive on fabric until rock is spread.

Unless the Engineer eliminates the sump, install a sump within 20 feet of each temporary construction entrance.

Repair fabric damaged during rock spreading by placing a new fabric over the damaged area. New fabric must be large enough to cover damaged area and provide at least 18-inch overlap on all edges.

Maintenance

Maintain temporary construction entrance to minimize generation of dust and tracking of soil and sediment onto public roads. If dust or sediment tracking increases, place additional rock unless the Engineer approves another method.

Repair temporary construction entrance if:

1. Fabric is exposed
2. Depressions in the entrance surface develop
3. Rock is displaced

Repair temporary construction entrance within 24 hours of discovering damage unless the Engineer approves a longer period.

During use of temporary construction entrance, do not allow soil, sediment, or other debris tracked onto pavement to enter storm drains, open drainage facilities, or watercourses. When material is tracked onto pavement, remove it within 24 hours unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace the temporary construction entrance, repair it at your expense.

Removal

When the Engineer determines that temporary construction entrance is not required, remove and dispose of it under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Backfill and repair ground disturbance, including holes and depressions, caused by installation and removal of temporary construction entrance under Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MEASUREMENT AND PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing and maintaining temporary construction entrance, complete in place, including removal of temporary construction entrance, as specified in the Standard Specifications and as directed by the Engineer will be considered as included in the contract lump sum price paid for construction site management and no additional compensation will be allowed therefor.

No additional compensation will be made if the temporary construction entrance is relocated during the course of construction.

10-1.15 REMOVAL OF ASBESTOS CONTAINING MATERIALS

Asbestos containing materials (ACM), as defined in Section 1529, "Asbestos," of the Construction Safety Orders, Title 8, of the California Code of Regulations are suspected to be present in the existing 6" waterlines proposed for abandonment.

In compliance with Standard Specifications Section 7-1.01F, the Contractor shall notify the El Dorado County Air Quality Management District as required by the National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 61, Subpart M, California Health and Safety Code section 39658(b)(1), and the California Air Resources Board regulations. A copy of the notification form and attachments shall be provided to the Engineer prior to submittal. Notification shall take place a minimum of 10 working days prior to starting demolition or renovation activities.

ASBESTOS SURVEY

Asbestos-containing material was detected in the 6" Asbestos Cement Pipe (existing 6" water lines).

REMOVAL OF ASBESTOS CONTAINING MATERIAL

Removal and management of ACM shall be performed by a contractor who is registered pursuant to Section 6501.5 of the Labor Code and certified pursuant to Section 7058.6 of the Business and Professions Code. Asbestos removal shall conform to Cal/OSHA requirements in Title 8 Sections 1529 and 341. All friable material shall be removed in a manner that conforms to OSHA work practice requirements. All non-friable ACM shall be removed and handled to prevent breakage. Non-friable ACM such as asbestos cement pipe shall be disposed of to a landfill facility permitted to take regulated asbestos containing material. The removal of ACM encased in concrete or other similar structural material is not required prior to demolition, but such material shall be adequately wetted whenever exposed during demolition. Packaging, storage, transporting, and disposing of ACM, shall conform to Title 22, Division 4.5, Chapters 11, 12 and 13 of the California Code of Regulations. The handling, removal, transportation, and disposal of ACM shall result in no visible dust. The Contractor shall have a water truck available at all times while performing earthwork, excavation or demolition activities in work areas containing ACM.

Asbestos removal procedures shall include, but not be limited to:

- A. Installing asbestos warning signs at perimeters of abatement work areas.
- B. Wetting asbestos materials with sprayers.
- C. Containing large volumes of asbestos materials in disposal bins for temporary storage until removed from the site.
- D. Providing manifests for waste disposal upon completion for the Engineer to sign.
- E. Transporters registered to transport hazardous waste in the State of California in accordance with the provisions of Chapter 6.5, Division 20 of the Health and Safety Code and Title 22 of the California Code of Regulations, Division 4.5.
- F. Disposing of asbestos materials at a permitted disposal facility, which accepts such materials.
- G. Working in accordance with Federal, State, and Local requirements for asbestos work.\

All vehicles used to transport ACM shall be marked as specified below, or an equivalent warning:

DANGER
ASBESTOS DUST HAZARD
AUTHORIZED PERSONNEL ONLY

Handling

The Contractor shall comply with CCR Title 22, Division 4.5, Chapter 12, Article 3 requirements for the removal of material containing asbestos prior to and during demolition and alteration, and shall place such removed material in approved plastic containers (double ply, 0.006 in minimum thickness, plastic bags) with caution labels affixed to bags. Such caution labels shall have conspicuous, legible lettering, which spells out the following, or equivalent warning:

CAUTION
CONTAINS ASBESTOS FIBERS
BREATHING ASBESTOS DUST MAY
CAUSE SERIOUS BODILY HARM

At the option of the Contractor, the removed materials containing asbestos may be placed directly into a covered roll off or drop box, which shall have the same caution label, affixed on all sides.

Transporting

All haulers of Asbestos Containing material shall be currently registered with the State Department of Toxic Substances Control (DTSC), and shall have a U.S. Environmental Protection Agency Identification Number (U.S. EPA I.D. Number). All vehicles used to transport hazardous waste material shall have affixed to the vehicle a valid Certificate of Compliance issued by DTSC. If a roll off or drop box is utilized, both the drop box and the transporting vehicle must have a valid Certificate of Compliance issued by DTSC.

Disposal

The Engineer will obtain the required EPA generator identification numbers, and will sign the hazardous waste manifests. The Contractor shall dispose of all hazardous waste containing asbestos at a disposal facility permitted to accept such material and that meets all the requirements specified by Federal, State, and Local regulations. The Contractor shall notify the proper authorities at the disposal site in advance of delivery of hazardous waste containing asbestos to the disposal site. The Contractor shall conduct additional sampling deemed necessary by the owner of the disposal facility for acceptance of the material. This sampling shall be at the Contractor's expense.

If, as determined by the Engineer, the disposal of asbestos in the project area delays the current controlling operation, the delay will be considered a right of way delay and the Contractor will be compensated for the delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

ASBESTOS COMPLIANCE PLAN

The Contractor shall prepare an Asbestos Compliance Plan (ACP) to prevent or minimize exposure to asbestos. Attention is directed to Title 8, California Code of Regulations, Construction Safety Orders, Section 5192 (b) and Section 1529, "Asbestos", Occupational Safety and Health Guidance Manual published by the National Institute of Occupational Safety and Health (NIOSH) and the USEPA for elements of the ACP. The ACP shall contain as a minimum but not be limited to: identification of key personnel for the project, job hazard analysis for work assignments, summary of risk assessment, personal protective equipment, delineation of work zones on-site, decontamination procedures, general safe work practices, security measures, emergency response plans and worker training. The ACP shall be approved by the Contractor's Certified Industrial Hygienist before submission to the Engineer for review and acceptance. The plan shall be submitted to the Engineer at least 15 working days prior to beginning work in areas containing or suspected to contain asbestos.

TRAINING

Prior to performing work in areas containing or suspected to contain asbestos, personnel who have no prior training or are not current in their training status, including State personnel, shall complete a safety training program provided by the Contractor, which meets the requirement of Title 8, California Code of Regulations, Section 1529 and Section 5192 (b)(4)(B), and 29 CFR 1910 and 1926. The Contractor shall provide a written certification of completion of safety training to the Engineer for trained personnel prior to performing work in areas containing or suspected to contain asbestos.

EQUIPMENT AND MEDICAL SURVEILLANCE

The Contractor shall provide personnel protective equipment, training, and medical surveillance required by the Contractor's Asbestos Compliance Plan to State personnel. The number of State personnel will be 2.

PAYMENT

The contract lump sum price paid for Asbestos Compliance Plan shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing the Asbestos

Green Valley Road at Tennessee Creek – Bridge Replacement Project

Contract No. PW 09-30407 / CIP No. 77109

January 11, 2011

County of El Dorado, DOT

Special Provisions

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Compliance Plan, including paying the Certified Industrial Hygienist, and for providing personal protective equipment, training and medical surveillance, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract lump sum price paid for asbestos containing material removal shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved, including removal of ACM, containment, transporting and disposal of asbestos containing materials, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.16 DUST CONTROL

Dust control shall conform to the provisions in Section 10, "Dust Control," of the Standard Specifications, Rules 223 and 223-2 (Dust Rules) of the Rules and Regulations of the El Dorado County Air Quality Management District (AQMD) and these special provisions.

Nothing in these special provisions shall be construed as relieving the Contractor of the responsibilities as set forth in Section 7, "Legal Relations and Responsibility" of the Standard Specifications.

The Dust Rules can be obtained from the AQMD, 2850 Fairlane Court, Placerville, CA, 95667, (530) 621-6662, and are available at:

http://www.edcgov.us/emd/apcd/construction_dust_rules.html.

The materials within the project limits are known or suspected to contain naturally occurring asbestos and the project is located within designated Naturally Occurring Asbestos Review Areas on the current El Dorado County Naturally Occurring Asbestos Review Area Map. A trace amount (<1%) of asbestos was found in 1 of the 8 total samples taken.

PLAN PREPARATION, APPROVAL AND AMENDMENTS

The Contractor must submit a site specific Asbestos Dust Mitigation Plan (ADMP) to the AQMD meeting the requirements of Rule 223-2 for approval by the El Dorado County AQMD, prior to the start of any work. For projects exceeding 1 acre, where natural occurring asbestos is found to be present, the ADMP must comply with the State Asbestos Air Toxics Control Measure (CCR Title 17, Section 93105) and the County Ordinance (Chapter 8.44). The Contractor shall provide the Engineer with four (4) copies of the AQMD approved ADMP prior to the start of any work that may generate dust.

The Contractor shall prepare an amendment to the ADMP when there is a change in construction activities or operations not included in the ADMP, when Contractor's activities or operations violate a condition of the AQMD, or when directed by the Engineer. Amendments shall identify additional dust control practices or revised operations, including those areas or operations not identified in the initially approved ADMP. Amendments to the ADMP shall be prepared and submitted for review and approval within a time approved by the Engineer.

The Contractor shall keep one (1) copy of the approved ADMP and approved amendments at the project site. The ADMP shall be made available upon request by a representative of the AQMD, California Air Resource Board, United States Environmental Protection Agency, or Caltrans. Requests by the public shall be directed to the Engineer.

The contractor shall provide all notices to the AQMD and create and maintain all records as required by Rule 223-2. Copies of all required records shall be submitted to the Engineer within 30 calendar days of completion of all work subject to Rule 223-2.

The Contractor shall also submit a dust control schedule that describes the timing of grading or other work activities that could promote dust to the Engineer prior to the start of any work. The dust control schedule shall be updated by the Contractor to reflect changes in the Contractor's operations that would affect the necessary implementation of dust control practices.

DUST CONTROL

The Contractor shall implement the measures contained in the ADMP to control dust in accordance with Rule 223-2, the Standard Specifications and these special provisions, and as directed by the Engineer.

The Contractor is advised that significant dust control measures will be required during construction operations. In order to mitigate dust, past projects have required extensive pre-wetting to depths of cuts, the use of a dedicated water truck for each piece of earthmoving equipment (e.g., scrapers, dozers, excavators, loaders, haul trucks, backhoes, compactors, graders, etc.), and the use of rock track out pads and wheel wash stations at all points of egress from unpaved construction areas. These examples are not necessarily the exact mitigation measures needed on this project; rather, they have been listed to provide an idea of the extensive nature of dust control activities that may be necessary. The dust control measures that will be required to mitigate dust may impact the Contractor's productivity during construction activities. All impacts to productivity are considered included in the Contractor's bid price for the associated items of work and no additional compensation will be allowed therefore.

The Contractor shall know and fully comply with applicable provisions of the Permits and all modifications thereto, Dust Rules, and Federal, State, and local regulations and requirements that govern the Contractor's operations. Attention is directed to Sections 7-1.01, "Laws to be Observed," and 7-1.12, "Indemnification and Insurance," of the Standard Specifications.

The Contractor shall be responsible for penalties assessed or levied on the Contractor or the Department as a result of the Contractor's failure to comply with the provisions in this section "Dust Control" including, but not limited to, compliance with the applicable provisions of the Permits, Dust Rules, and Federal, State and local regulations and requirements as set forth therein.

Penalties as used in this section, "Dust Control," shall include fines, penalties and damages, whether proposed, assessed, or levied against the Department or the Contractor by governmental agencies or as a result of citizen suits. Penalties shall also include payments made or costs incurred in settlement for alleged violations of the Permits, Dust Rules, or applicable laws, regulations, or requirements. Costs incurred could include sums spent instead of penalties, in mitigation or to remediate or correct violations.

RETENTION OF FUNDS

Notwithstanding any other remedies authorized by law, the Department may retain money due the Contractor under the contract, in an amount determined by the Department, up to and including the entire amount of Penalties proposed, assessed, or levied as a result of the Contractor's violation of the Permits, Dust Rules, or Federal or State law, regulations or requirements. Funds may be retained by the Department until final disposition has been made as to the Penalties. The Contractor shall remain liable for the full amount of Penalties until such time as they are finally resolved with the entity seeking the Penalties.

Retention of funds for failure to conform to the provisions in this section, "Dust Control," shall be in addition to the other retention amounts required by the contract. The amounts retained for the Contractor's failure to conform to provisions in this section will be released for payment on the next monthly estimate for partial payment following the date when an approved ADMP has been implemented and maintained, and when dust has been adequately controlled, as determined by the Engineer.

When a regulatory agency identifies a failure to comply with the Permits and modifications thereto, Dust Rules, or other Federal, State or local requirements, the Department may retain money due the Contractor, subject to the following:

- A. The Department will give the Contractor thirty (30) days notice of the Department's intention to retain funds from partial payments which may become due to the Contractor prior to acceptance of the contract. Retention of funds from payments made after acceptance of the contract may be made without prior notice to the Contractor.
- B. No retention of additional amounts out of partial payments will be made if the amount to be retained does not exceed the amount being withheld from partial payments pursuant to "Payments of Withheld Funds" of these special provisions.
- C. If the Department has retained funds, and it is subsequently determined that the County is not subject to the entire amount of the Costs and Liabilities assessed or proposed in connection with the matter for which the retention was made, the Department shall be liable for interest on the amount retained for the period of the retention. The interest rate payable shall be six percent (6%) per annum.

During the first estimate period that the Contractor fails to conform to the provisions in this section, "Dust Control," the Department may retain an amount equal to twenty five percent (25%) of the estimated value of the contract work performed.

The Contractor shall notify the Engineer immediately upon request from the regulatory agencies to enter, inspect, sample, monitor, or otherwise access the project site or the Contractor's records pertaining to dust control work. The Contractor and the Department shall provide copies of correspondence, notices of violation, enforcement actions or proposed fines by regulatory agencies to the requesting regulatory agency.

PAYMENT

The contract lump sum price paid for prepare Asbestos Dust Mitigation Plan shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in developing, preparing, obtaining approval, revising, and amending the ADMP, for maintaining and submitting all dust control records, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The cost of performing dust control shall be considered as included in the various items of roadway and bridge work and no additional compensation shall be allowed therefor.

10-1.17 TEMPORARY FENCE (TYPE ESA)

Temporary fence (Type ESA) shall be furnished, installed, maintained, and later removed in conformance with the details shown on the plans, as specified in these special provisions and as directed by the Engineer. Locations of the temporary fence (Type ESA) shown on the plans are approximate, and the exact fence locations shall be adjusted so that existing trees are located behind the fence and protected in place.

Temporary fence (Type ESA), as shown on the plans, to be placed near the creek area shall be used to delineate the Environmentally Sensitive Area within the riparian corridor. A total of eight (8) signs reading "Environmentally Sensitive Area – Area Off Limits" shall be placed on the temporary fence (Type ESA). One sign shall be placed on the temporary fence (Type ESA) in each location that the fence meets the creek bank (4 locations) and one sign shall be placed on the fence twenty-five feet away from each location where the fence meets the creek bank (4 locations).

MATERIALS

Used materials may be installed provided the used materials conform to these special provisions.

High Visibility Fabric

High visibility fabric shall be machine produced, orange colored mesh manufactured from polypropylene or polyethylene. High visibility fabric may be made of recycled materials. Materials shall not contain biodegradable filler materials that can degrade the physical or chemical characteristics of the finished fabric. High visibility fabric shall be fully stabilized ultraviolet resistant, shall be a minimum of 4 feet in width with a maximum mesh opening of 2" x 2". High visibility fabric shall be furnished in one continuous width and shall not be spliced to conform to the specified width dimension.

Posts

Posts for temporary fence (Type ESA) shall be of one of the following:

- A. Wood posts shall be fir or pine, shall have a minimum cross section of 2" x 2", and a minimum length of 5.25 feet. The end of the post to be embedded in the soil shall be pointed. Wood posts shall not be treated with wood preservative.
- B. Steel posts shall have a "U," "T," "L," or other cross sectional shape that resists failure from lateral loads. Steel posts shall have a minimum weight of 0.75 pounds per linear foot and a minimum length of 5.25 feet. One end of the steel post shall be pointed and the other end shall have a high visibility colored top.

Fasteners

Fasteners for attaching high visibility fabric to the posts shall be as follows:

- A. The high visibility fabric shall be attached to wooden posts with commercial quality nails or staples, or as recommended by the manufacturer or supplier.
- B. Tie wire or locking plastic fasteners shall be used for attaching the high visibility fabric to steel posts. Maximum spacing of tie wire or fasteners shall be 24 inches along the length of the steel post.

Signs

The minimum sign dimensions shall be 8 ½" x 11". The sign shall be weatherproof and fade-proof and may include plastic laminated printed paper affixed to an inflexible weatherproof backer board. The sign panel shall be affixed to the high visibility fabric with tie wire or locking plastic fasteners. The top of the sign panel shall be flush with the top of the high visibility fabric.

INSTALLATION

Temporary fence (Type ESA) shall be installed as follows:

- A. All fence construction activities shall be conducted from outside the ESA as shown on the plans or as staked.
- B. Posts shall be embedded in the soil a minimum of 16 inches. Post spacing shall be 8 feet maximum from center to center and shall at all times support the fence in a vertical position.
- C. Temporary fence (Type ESA) shall be constructed prior to clearing and grubbing work, shall enclose the foliage canopy (drip line) of protected plants, and shall not encroach upon visible roots of the plants.
- D. Temporary fence (Type ESA) shall be located so that it is visible, as determined by the Engineer.

When Type ESA temporary fence is no longer required, as determined by the Engineer, the temporary fence shall be removed and disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications, except when reused as provided in this section.

Holes caused by the removal of temporary fence (Type ESA) shall be backfilled in conformance with the provisions in Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MAINTENANCE

Temporary fence (Type ESA) that is damaged during the progress of the work shall be repaired or replaced by the Contractor the same day the damage occurs.

PAYMENT

Full compensation for installing, maintaining, removing, and disposing of temporary fence (Type ESA), including furnishing and placing signs, shall be considered as included in the contract price paid per linear foot for temporary fence (Type ESA) and no additional compensation will be allowed therefor.

10-1.18 TEMPORARY CREEK DIVERSION SYSTEM

Temporary creek diversion system shall be constructed, maintained, and later removed at the locations shown on the approved Storm Water Pollution Prevention Plan in conformance with "Water Pollution Control" of these special provisions, and in conformance with these special provisions.

Temporary creek diversion system shall be one of the water pollution control practices for non-storm water management control. The Storm Water Pollution Prevention Plan shall include the use of temporary creek diversion system. However, payment for the temporary creek diversion will be in accordance with this section and not in accordance with Water Pollution Control special provisions.

The Contractor shall design a temporary creek diversion system that complies with all permits requirements and these special provisions. The design shall demonstrate that the diversion system can handle the anticipated flows, with the additional capacity to handle reasonably anticipated flows from unexpected storm events. Dewatering and stream crossing structures as part of the temporary creek diversion system may include the use of clean removable materials, such as, sand bags, Port-a-dams, water bladder dams, K-rails, driven sheet metal coffer dams and trestles. The Contractor shall submit details for a temporary creek diversion system to the Engineer for approval twenty days prior to starting any work that will require the temporary creek diversion. The submittal shall include a contingency plan in the event the temporary creek diversion system fails. The temporary creek diversion system must also be approved by the Department of Fish & Game following approval by the County. All dewatering structures shall be removed from the stream zone by October 15 unless otherwise authorized by the Engineer.

INSTALLATION

Use of the temporary creek diversion system is restricted to the period from April 15 to October 15. If the work requires more than one restricted period, the temporary creek diversion system shall be removed by the conclusion of the restricted period and repositioned during the following restricted period at the Contractor's expense. Attention is directed to "Relations with California Department of Fish and Game", "Relations with the Army Corps of Engineers" and "Water Pollution Control" of these special provisions regarding additional permit restrictions.

The Contractor shall be responsible for preventing, at his expense, any leakage in the temporary creek diversion system that may interfere with the work.

When no longer required, as determined by the Engineer, temporary creek diversion system shall be removed and disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Holes, depressions or other ground disturbance caused by the installation and removal of the temporary creek diversion system shall be backfilled and repaired in conformance with the provisions in the second paragraph of Section 15-1.02, "Preservation of Property," of the Standard Specifications.

MAINTENANCE

Temporary creek diversion system shall be maintained to provide adequate holding capacity with a minimum freeboard of 12 inches.

Temporary creek diversion system shall be repaired or replaced on the same day when the damage occurs. Damage to the temporary creek diversion system resulting from the Contractor's vehicles, equipment, or operations shall be repaired at the Contractor's expense.

If during the progress of the work it becomes necessary to reposition or relocate portions of the temporary creek diversion system, the work shall be done at the Contractor's expense.

PAYMENT

The contract lump sum price paid for temporary creek diversion system shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in temporary creek diversion system, complete in place, including design of the system and submittal of the plan, implementation, maintenance, and removal of the temporary creek diversion system, dewatering necessary to dewater within the limits of the temporary creek diversion system if the flows remaining after the diversion is installed will not just flow downstream, and restoring the creek back to its original condition as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.19 TEMPORARY SHORING

Temporary shoring shall be designed, furnished, constructed, monitored, maintained, and removed in conformance with the provisions in these special provisions.

Attention is directed to the Foundation Investigation Report regarding the expected subsurface conditions the Contractor can anticipate when installing temporary shoring near the bridge location. The Contractor shall expect hard and intact rock to be encountered during excavation. Free groundwater levels shall also be expected during excavation near and adjacent to the creek channel, wherein granular, saturated soil layers exist capable of transmitting substantial quantities of seepage to open excavations.

Attention is directed to the sections "Order of Work" and "Maintaining Traffic" of these special provisions regarding the construction sequence.

Approval by the Engineer of the temporary shoring working drawings or temporary shoring inspection performed by the Engineer will in no way relieve the Contractor of full responsibility for the temporary shoring.

TEMPORARY SHORING DESIGN AND DRAWINGS

The Contractor shall submit to the Engineer three (3) sets of working drawings and design calculations for the temporary shoring. Such drawings and design calculations shall be stamped and signed by an engineer who is registered as a Civil Engineer in the State of California. The temporary shoring working drawings and design calculations shall conform to the requirements in Section 5-1.02 "Plans and Working Drawings," of the Standard Specifications.

Working drawings for any part of the temporary shoring shall include stress sheets, shop details, and erection and removal plans.

The temporary shoring working drawings shall include descriptions and values of all loads, including traffic surcharge loads, construction equipment loads, descriptions of equipment to be used, complete details and calculations for temporary shoring stresses and displacements, and descriptions of the displacement monitoring system. The displacement monitoring system shall include equipment to be used, location of control points, method and schedule of taking measurements, and provisions to support the temporary shoring should unanticipated displacements occur.

The Contractor shall determine the bearing value of the soil and shall show the values assumed in the design of the temporary shoring on the temporary shoring drawings. Anticipated temporary shoring displacements shall be shown on the temporary shoring drawings.

Temporary shoring shall be designed to carry the load imposed upon them without exceeding the estimated soil bearing values and anticipated displacements.

The temporary shoring design calculations shall show a summary of computed stresses in the temporary shoring. The computed stresses shall include the effect of the embankment construction sequence. The temporary shoring design calculations shall also include a lateral stiffness assessment of the temporary shoring system and shall conform to the design values shown on the plans.

The design of temporary supports will not be approved unless it is based on the use of loads and conditions which are no less severe than those described in "Temporary Shoring Design Criteria" of these special provisions and on the use of allowable stresses which are no greater than those described in Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the Standard Specifications.

TEMPORARY SHORING DESIGN CRITERIA

Temporary shoring shall accommodate and support the placement of Temporary Railing (Type K) necessary for stage construction. The construction equipment loads shall be the actual weight of the construction equipment.

The temporary shoring shall resist the lateral design forces resulting from construction equipment loads, traffic surcharge loads, and compaction methods applied to the temporary shoring.

The temporary shoring may be mechanically connected to the Stage 1 structure. The mechanical connections shall be capable of resisting the lateral temporary shoring design forces. Friction forces developed between the existing structure and temporary shoring shall not be used to reduce the lateral forces and shall not be considered as an effective mechanical connection. The mechanical connections shall be designed to tolerate adjustments to the temporary shoring throughout the use of the temporary shoring.

Manufactured Assemblies

Manufactured assemblies shall conform to the provisions in Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the Standard Specifications and these special provisions.

TEMPORARY SHORING CONSTRUCTION

Attention is directed to paragraphs 1 through 7 of Section 51-1.06B, "Falsework Construction," of the Standard Specifications. All reference to falsework in these paragraphs shall also apply to temporary shoring.

Welding, welder qualification, and inspection of welding for all steel members shall conform to the requirements of AWS D1.1. Prior to proceeding embankment construction, an engineer for the Contractor who is registered as a Civil Engineer in the State of California shall inspect the temporary shoring, including displacement monitoring systems, for

conformity with the working drawings. The Contractor's registered engineer shall certify in writing that the temporary shoring, including displacement monitoring systems, conform to the working drawings, and that the material and workmanship are satisfactory for the purpose intended. A copy of this certification shall be available at the site of the work at all times.

The Contractor shall perform an initial survey as part of the displacement monitoring system to record the location of the structure and temporary shoring prior to the commencement of any work. Two copies of the survey shall be signed by an engineer, who is registered as a Civil Engineer in the State of California, and submitted to the Engineer.

Vandal-resistant displacement monitoring equipment shall be provided and maintained. Vertical and horizontal displacements of the temporary shoring and the existing structure shall be monitored continuously during embankment construction operations and shall be accurately measured and recorded at least weekly during embankment construction work. As a minimum, measurements shall be taken for every two-feet of embankment placed and once a month while open to public traffic. The records of vertical and horizontal displacement shall be signed by an engineer who is registered as a Civil Engineer in the State of California and available to the Engineer at the jobsite during normal working hours, and a copy of the record shall be delivered to the Engineer at the completion of embankment construction and at a minimum of monthly during winter shutdown.

Should unanticipated displacements, cracking or other damage occur, the construction shall be discontinued until corrective measures satisfactory to the Engineer are performed. Damage to the structure as a result of the Contractor's operations shall be repaired by the Contractor in conformance with the provisions in Section 7-1.11, "Preservation of Property," of the Standard Specifications.

Following completion of the embankment construction, the monitored control points shall not deviate from the vertical position by more than 1/2 inch and the horizontal position by more than 1 inch from the initial survey locations or the locations as modified by the Engineer.

REMOVING TEMPORARY SHORING

Attention is directed to Section 51-1.06C, "Removing Falsework," of the Standard Specifications. All references to falsework in this section shall also apply to temporary shoring.

Attachments to the Stage 1 substructure shall be removed if the attachments will not be fully encased in the Stage 3 substructure concrete. Attachments may remain if fully encased.

PAYMENT

Temporary shoring will not be measured for payment.

Full compensation for temporary shoring shall be considered as included in the lump sum contract price paid for trench and excavation safety and no separate payment will be made therefor.

10-1.20 COOPERATION

It is anticipated that work by another contractor may be in progress adjacent to or within the limits of this project during progress of the work on this contract. The following table lists contracts anticipated to be in progress during this contract.

Contract No.	Co-Rte-PM	Location	Type of Work
72183	North Shingle Road	Intersection of North Shingle Road & Ponderosa Road to 'GVR-1' Sta. 10+00	AC Overlay

Comply with Section 7-1.14, "Cooperation," of the Standard Specifications.

10-1.21 PROGRESS SCHEDULE (CRITICAL PATH METHOD)

GENERAL

Summary

Critical path method (CPM) progress schedules are required for this project. Whenever the term "schedule" is used in this section, it means CPM progress schedule.

The provisions in Section 8-1.04, "Progress Schedule," of the Standard Specifications do not apply.

Definitions

The following definitions apply to this section:

- ACTIVITY:** A task, event or other project element on a schedule that contributes to completing the project. Activities have a description, start date, finish date, duration and one or more logic ties.
- BASELINE SCHEDULE:** The initial schedule showing the original work plan beginning on the date of contract approval. This schedule shows no completed work to date and no negative float or negative lag to any activity.
- CONTRACT COMPLETION DATE:** The current extended date for completion of the contract shown on the weekly statement of working days furnished by the Engineer as specified in Section 8-1.06, "Time of Completion," of the Standard Specifications.
- CRITICAL PATH:** The longest continuous chain of activities for the project that has the least amount of total float of all chains. In general, a delay on the critical path will extend the scheduled completion date.
- CRITICAL PATH METHOD (CPM):** A network based planning technique using activity durations and the relationships between activities to mathematically calculate a schedule for the entire project.
- DATA DATE:** The day after the date through which a schedule is current. Everything occurring earlier than the data date is "as-built" and everything on or after the data date is "planned."
- EARLY COMPLETION TIME:** The difference in time between an early scheduled completion date and the contract completion date.
- FLOAT:** The difference between the earliest and latest allowable start or finish times for an activity.
- MILESTONE:** An event activity that has zero duration and is typically used to represent the beginning or end of a certain stage of the project.
- NARRATIVE REPORT:** A document submitted with each schedule that discusses topics related to project progress and scheduling.
- NEAR CRITICAL PATH:** A chain of activities with total float exceeding that of the critical path but having no more than 10 working days of total float.
- SCHEDULED COMPLETION DATE:** The planned project finish date shown on the current accepted schedule.
- TIME IMPACT ANALYSIS:** A schedule and narrative report developed specifically to demonstrate what effect a proposed change or delay has on the current scheduled completion date.
- TIME-SCALED NETWORK DIAGRAM:** A graphic depiction of a CPM schedule comprised of activity bars with relationships for each activity represented by arrows. The tail of each arrow connects to the activity bar for the predecessor and points to the successor.
- TOTAL FLOAT:** The amount of time that an activity or chain of activities can be delayed before extending the scheduled completion date.
- UPDATED SCHEDULE:** A current schedule developed from the baseline or subsequent schedule through regular monthly review to incorporate as-built progress and any planned changes.

Submittals

General Requirements

Submit to the Engineer baseline, monthly updated, and final updated schedules, each consistent in all respects with the time and order of work requirements of the contract. Work must be executed in the sequence indicated on the current accepted schedule.

Schedules must show the order in which you propose to prosecute the work with logical links between time-scaled work activities and calculations made using the critical path method to determine the controlling activities. You are responsible for assuring that all activity sequences are logical and that each schedule shows a coordinated plan for complete performance of the work.

Produce schedules using computer software and submit compatible software for the Engineer's exclusive possession and use. Submit network diagrams and schedule data as parts of each schedule submittal.

Schedule activities must include the following:

1. Project characteristics, salient features, or interfaces, including those with outside entities, that could affect time of completion
2. Project start date, scheduled completion date, and other milestones
3. Work performed by you, your subcontractors, and suppliers
4. Submittal development, delivery, review, and approval, including those from you, your subcontractors, and suppliers
5. Procurement, delivery, installation, and testing of materials, plants, and equipment
6. Testing and settlement periods
7. Utility notification and relocation
8. Erection and removal of falsework and shoring
9. Major traffic stage switches
10. Finishing roadway and final cleanup
11. State-owned float as the predecessor activity to the scheduled completion date

Schedules must have not less than 50 and not more than 500 activities, unless otherwise authorized by the Engineer. The number of activities must be sufficient to assure adequate planning of the project, to permit monitoring and evaluation of progress, and to do an analysis of time impacts.

Schedule activities must include the following:

1. A clear and legible description.
2. Start and finish dates.
3. A duration of not less than one working day, except for event activities, and not more than 20 working days, unless otherwise authorized by the Engineer.
4. At least one predecessor and one successor activity, except for project start and finish milestones.
5. Required constraints. Constraints other than those required by the special provisions may be included only if authorized by the Engineer.
6. Codes for responsibility, stage, work shifts, location, and contract pay item numbers.

You may show early completion time on any schedule provided that the requirements of the contract are met. Early completion time is considered a resource for your exclusive use. You may increase early completion time by improving production, reallocating resources to be more efficient, performing sequential activities concurrently, or by completing activities earlier than planned. You may also submit for approval a cost reduction incentive proposal as specified in Section 5-1.14, "Cost Reduction Incentive," of the Standard Specifications that will reduce time of construction.

You may show a scheduled completion date that is later than the contract completion date on an update schedule, after the baseline schedule is accepted. Provide an explanation for a late scheduled completion date in the narrative report that is included with the schedule.

State-owned float is considered a resource for the exclusive use of the State. The Engineer may accrue State-owned float by the early completion of review of any type of required submittal when it saves time on the critical path. Prepare a time impact analysis, when requested by the Engineer, to determine the effect of the action as specified in "Time Impact Analysis." The Engineer documents State-owned float by directing you to update the State-owned float activity on the next updated schedule. Include a log of the action on the State-owned float activity and include a discussion of the action in the narrative report. The Engineer may use State-owned float to mitigate past, present, or future State delays by offsetting potential time extensions for contract change orders.

The Engineer may adjust contract working days for ordered changes that affect the scheduled completion date as specified in Section 4-1.03, "Changes," of the Standard Specifications. Prepare a time impact analysis to determine the effect of the change as specified in "Time Impact Analysis" and include the impacts acceptable to the Engineer in the next updated schedule. Changes that do not affect the controlling operation on the critical path will not be considered as the basis for a time adjustment. Changes that do affect the controlling operation on the critical path will be considered by the

Engineer in decreasing time or granting an extension of time for completion of the contract. Time extensions will only be granted if the total float is absorbed and the scheduled completion date is delayed one or more working days because of the ordered change.

The Engineer's review and acceptance of schedules does not waive any contract requirements and does not relieve you of any obligation or responsibility for submitting complete and accurate information. Correct rejected schedules and resubmit corrected schedules to the Engineer within 7 days of notification by the Engineer, at which time a new review period of 7 days will begin.

Errors or omissions on schedules do not relieve you from finishing all work within the time limit specified for completion of the contract. If, after a schedule has been accepted by the Engineer, either you or the Engineer discover that any aspect of the schedule has an error or omission, you must correct it on the next updated schedule.

Computer Software

Submit to the Engineer for review a description of proposed schedule software to be used. After the Engineer accepts the proposed software, submit schedule software and all original software instruction manuals. All software must be compatible with the current version of the Windows operating system in use by the Engineer. The schedule software must include:

1. Latest version of Primavera SureTrak Project Manager for Windows, or equivalent
2. Latest version of schedule-comparing HST SureChange, or equivalent

If a schedule software equivalent to SureTrak is proposed, it must be capable of generating files that can be imported into SureTrak. The schedule-comparing software must be compatible with schedule software submitted and must be able to compare two schedules and provide reports of changes in activity ID, activity description, constraints, calendar assignments, durations, and logic ties.

The schedule software and schedule-comparing software will be returned to you before the final estimate. The Department will compensate you as specified in Section 4-1.03, "Extra Work," of the Standard Specifications for replacement of software or manuals damaged, lost, or stolen after delivery to the Engineer.

Instruct the Engineer in the use of the software and provide software support until the contract is accepted. Within 15 days of contract approval, provide a commercial 8-hour training session for 2 Department employees in the use of the software at a location acceptable to the Engineer. It is recommended that you also send at least 2 employees to the same training session to facilitate development of similar knowledge and skills in the use of the software. If schedule software other than SureTrak is submitted, then the training session must be a total of 16-hours for each Department employee.

Network Diagrams, Reports, and Data

Include the following with each schedule submittal:

1. Two sets of originally plotted, time-scaled network diagrams
2. Two copies of a narrative report
3. One read-only compact disk or floppy diskette containing the schedule data

The time-scaled network diagrams must conform to the following:

1. Show a continuous flow of information from left to right
2. Be based on early start and early finish dates of activities
3. Clearly show the primary paths of criticality using graphical presentation
4. Be prepared on 34" x 44"
5. Include a title block and a timeline on each page

The narrative report must be organized in the following sequence with all applicable documents included:

1. Transmittal letter
2. Work completed during the period

3. Identification of unusual conditions or restrictions regarding labor, equipment or material; including multiple shifts, 6-day work weeks, specified overtime or work at times other than regular days or hours
4. Description of the current critical path
5. Changes to the critical path and scheduled completion date since the last schedule submittal
6. Description of problem areas
7. Current and anticipated delays:
 - 7.1. Cause of delay
 - 7.2. Impact of delay on other activities, milestones, and completion dates
 - 7.3. Corrective action and schedule adjustments to correct the delay
8. Pending items and status thereof:
 - 8.1. Permits
 - 8.2. Change orders
 - 8.3. Time adjustments
 - 8.4. Noncompliance notices
9. Reasons for an early or late scheduled completion date in comparison to the contract completion date

Schedule submittals will only be considered complete when all documents and data have been submitted as described above.

Preconstruction Scheduling Conference

Schedule a preconstruction scheduling conference with your project manager and the Engineer within 15 days after contract approval. The Engineer will conduct the meeting and review the requirements of this section with you.

Submit a general time-scaled logic diagram displaying the major activities and sequence of planned operations and be prepared to discuss the proposed work plan and schedule methodology that comply with the requirements of this section. If you propose deviations to the construction staging, then the general time-scaled logic diagram must also display the deviations and resulting time impacts. Be prepared to discuss the proposal.

At this meeting, also submit the alphanumeric coding structure and activity identification system for labeling work activities. To easily identify relationships, each activity description must indicate its associated scope or location of work by including such terms as quantity of material, type of work, bridge number, station to station location, side of highway (such as left, right, northbound, southbound), lane number, shoulder, ramp name, ramp line descriptor, or mainline.

The Engineer reviews the logic diagram, coding structure, and activity identification system, and provide any required baseline schedule changes to you for implementation.

Baseline Schedule

Beginning the week following the preconstruction scheduling conference, meet with the Engineer weekly to discuss schedule development and resolve schedule issues until the baseline schedule is accepted.

Submit to the Engineer a baseline schedule within 20 days of approval of the contract. Allow 20 days for the Engineer's review after the baseline schedule and all support data are submitted. In addition, the baseline schedule submittal is not considered complete until the computer software is delivered and installed for use in review of the schedule.

The baseline schedule must include the entire scope of work and how you plan to complete all work contemplated. The baseline schedule must show the activities that define the critical path. Multiple critical paths and near-critical paths must be kept to a minimum. A total of not more than 50 percent of the baseline schedule activities must be critical or near critical, unless otherwise authorized by the Engineer.

The baseline schedule must not extend beyond the number of contract working days. The baseline schedule must have a data date of contract approval. If you start work before contract approval, the baseline schedule must have a data date of the 1st day you performed work at the job site.

If you submit an early completion baseline schedule that shows contract completion in less than 85 percent of the contract working days, the baseline schedule must be supplemented with resource allocations for every task activity and include time-scaled resource histograms. The resource allocations must be shown to a level of detail that facilitates report generation based on labor crafts and equipment classes for you and your subcontractors. Use average composite crews to display the labor loading of on-site construction activities. Optimize and level labor to reflect a reasonable plan for accomplishing the work of the contract and to assure that resources are not duplicated in concurrent activities. The time-scaled resource histograms must show labor crafts and equipment classes to be used. The Engineer may review the baseline schedule activity resource allocations using Means Productivity Standards or equivalent to determine if the schedule is practicable.

Updated Schedule

Submit an updated schedule and meet with the Engineer to review contract progress, on or before the 1st day of each month, beginning one month after the baseline schedule is accepted. Allow 15 days for the Engineer's review after the updated schedule and all support data are submitted, except that the review period will not start until the previous month's required schedule is accepted. Updated schedules that are not accepted or rejected within the review period are considered accepted by the Engineer.

The updated schedule must have a data date of the 21st day of the month or other date established by the Engineer. The updated schedule must show the status of work actually completed to date and the work yet to be performed as planned. Actual activity start dates, percent complete, and finish dates must be shown as applicable. Durations for work that has been completed must be shown on the updated schedule as the work actually occurred, including Engineer submittal review and your resubmittal times.

You may include modifications such as adding or deleting activities or changing activity constraints, durations, or logic that do not (1) alter the critical path(s) or near critical path(s) or (2) extend the scheduled completion date compared to that shown on the current accepted schedule. Justify in writing the reasons for any changes to planned work. If any proposed changes in planned work will result in (1) or (2) above, then submit a time impact analysis as specified in this section.

Time Impact Analysis

Submit a written time impact analysis (TIA) to the Engineer with each request for adjustment of contract time, or when you or the Engineer considers that an approved or anticipated change may impact the critical path or contract progress.

The TIA must illustrate the impacts of each change or delay on the current scheduled completion date or internal milestone, as appropriate. The analysis must use the accepted schedule that has a data date closest to and before the event. If the Engineer determines that the accepted schedule used does not appropriately represent the conditions before the event, the accepted schedule must be updated to the day before the event being analyzed. The TIA must include an impact schedule developed from incorporating the event into the accepted schedule by adding or deleting activities, or by changing durations or logic of existing activities. If the impact schedule shows that incorporating the event modifies the critical path and scheduled completion date of the accepted schedule, the difference between scheduled completion dates of the two schedules must be equal to the adjustment of contract time. The Engineer may construct and use an appropriate project schedule or other recognized method to determine adjustments in contract time until you provide the TIA.

Submit 2 copies of your TIA within 20 days of receiving a written request for a TIA from the Engineer. Allow the Engineer 15 days after receipt to review the submitted TIA. All approved TIA schedule changes must be shown on the next updated schedule.

If a TIA you submit is rejected, meet with the Engineer to discuss and resolve issues related to the TIA. If agreement is not reached, you are allowed 15 days from the meeting with the Engineer to give notice as specified in Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications. Only show actual as-built work, not unapproved changes related to the TIA, in subsequent updated schedules. If agreement is reached at a later date, approved TIA schedule changes must be shown on the next updated schedule. The Engineer withholds remaining payment on the schedule contract item if a TIA is requested and not submitted within 20 days. The schedule item payment resumes on the next estimate after the requested TIA is submitted. No other contract payment is withheld regarding TIA submittals.

Final Updated Schedule

Submit a final update, as-built schedule with actual start and finish dates for the activities, within 30 days after completion of contract work. Provide a written certificate with this submittal signed by your project manager or an officer of the company stating, "To my knowledge and belief, the enclosed final update schedule reflects the actual start and finish dates of the actual activities for the project contained herein." An officer of the company may delegate in writing the authority to sign the certificate to a responsible manager.

PAYMENT

Progress schedule (critical path method) will be paid for at a lump sum price. The contract lump sum price paid for progress schedule (critical path method) includes full compensation for furnishing all labor, material, tools, equipment, and incidentals, including computer software, and for doing all the work involved in preparing, furnishing, and updating schedules, and instructing and assisting the Engineer in the use of computer software, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Payments for the progress schedule (critical path method) contract item will be made progressively as follows:

1. A total of 25 percent of the item amount or a total of 25 percent of the amount listed for progress schedule (critical path method) in "Payments" of Section 5 of these special provisions, whichever is less, will be paid upon achieving all of the following:
 - 1.1. Completion of 5 percent of all contract item work.
 - 1.2. Acceptance of all schedules and approval of all TIAs required to the time when 5 percent of all contract item work is complete.
 - 1.3. Delivery of schedule software to the Engineer.
 - 1.4. Completion of required schedule software training.
2. A total of 50 percent of the item amount or a total of 50 percent of the amount listed for progress schedule (critical path method) in "Payments" of Section 5 of these special provisions, whichever is less, will be paid upon completion of 25 percent of all contract item work and acceptance of all schedules and approval of all TIAs required to the time when 25 percent of all contract item work is complete.
3. A total of 75 percent of the item amount or a total of 75 percent of the amount listed for progress schedule (critical path method) in "Payments" of Section 5 of these special provisions, whichever is less, will be paid upon completion of 50 percent of all contract item work and acceptance of all schedules and approval of all TIAs required to the time when 50 percent of all contract item work is complete.
4. A total of 100 percent of the item amount or a total of 100 percent of the amount listed for progress schedule (critical path method) in "Payments" of Section 5 of these special provisions, whichever is less, will be paid upon completion of all contract item work, acceptance of all schedules and approval of all TIAs required to the time when all contract item work is complete, and submittal of the certified final update schedule.

If you fail to complete any of the work or provide any of the schedules required by this section, the Engineer makes an adjustment in compensation as specified in Section 4-1.03C, "Changes in Character of Work," of the Standard Specifications for the work not performed. Adjustments in compensation for schedules will not be made for any increased or decreased work ordered by the Engineer in submitting schedules.

10-1.22 MOBILIZATION

Mobilization shall conform to the provisions in Section 11, "Mobilization," of the Standard Specifications.

10-1.23 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES

Flagging, signs, and temporary traffic control devices furnished, installed, maintained, and removed when no longer required shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Category 1 temporary traffic control devices are defined as small and lightweight (less than 100 pounds) devices. These devices shall be certified as crashworthy by crash testing, crash testing of similar devices, or years of demonstrable safe performance. Category 1 temporary traffic control devices include traffic cones, plastic drums, portable delineators, and channelizers.

If requested by the Engineer, the Contractor shall provide written self-certification for crashworthiness of Category 1 temporary traffic control devices at least 5 days before beginning any work using the devices or within 2 days after the request if the devices are already in use. Self-certification shall be provided by the manufacturer or Contractor and shall include the following:

- A. Date,
- B. Federal Aid number,
- C. Contract number, district, county, route and post mile of project limits,
- D. Company name of certifying vendor, street address, city, state and zip code,
- E. Printed name, signature and title of certifying person; and
- F. Category 1 temporary traffic control devices that will be used on the project.

The Contractor may obtain a standard form for self-certification from the Engineer.

Category 2 temporary traffic control devices are defined as small and lightweight (less than 100 pounds) devices that are not expected to produce significant vehicular velocity change, but may cause potential harm to impacting vehicles. Category 2 temporary traffic control devices include barricades and portable sign supports.

Category 2 temporary traffic control devices shall be on the Federal Highway Administration's (FHWA) list of Acceptable Crashworthy Category 2 Hardware for Work Zones. This list is maintained by FHWA and can be located at:

http://safety.fhwa.dot.gov/roadway_dept/road_hardware/listing.cfm?code=workzone

The Department also maintains this list at:

<http://www.dot.ca.gov/hq/traffops/signtech/signdel/pdf/Category2.pdf>

Category 2 temporary traffic control devices that have not received FHWA acceptance shall not be used. Category 2 temporary traffic control devices in use that have received FHWA acceptance shall be labeled with the FHWA acceptance letter number and the name of the manufacturer. The label shall be readable and permanently affixed by the manufacturer. Category 2 temporary traffic control devices without a label shall not be used.

If requested by the Engineer, the Contractor shall provide a written list of Category 2 temporary traffic control devices to be used on the project at least 5 days before beginning any work using the devices or within 2 days after the request if the devices are already in use.

Category 3 temporary traffic control devices consist of temporary traffic-handling equipment and devices that weigh 100 pounds or more and are expected to produce significant vehicular velocity change to impacting vehicles. Temporary traffic-handling equipment and devices include crash cushions, truck-mounted attenuators, temporary railing, temporary barrier, and end treatments for temporary railing and barrier.

Type III barricades may be used as sign supports if the barricades have been successfully crash tested, meeting the NCHRP Report 350 criteria, as one unit with a construction area sign attached.

Category 3 temporary traffic control devices shall be shown on the plans or on the Department's Highway Safety Features list. This list is maintained by the Division of Engineering Services and can be found at:

http://www.dot.ca.gov/hq/esc/approved_products_list/HighwaySafe.htm

Category 3 temporary traffic control devices that are not shown on the plans or not listed on the Department's Highway Safety Features list shall not be used.

Full compensation for providing self-certification for crashworthiness of Category 1 temporary traffic control devices and for providing a list of Category 2 temporary traffic control devices used on the project shall be considered as included in the prices paid for the various contract items of roadway and bridge work requiring the use of the Category 1 or Category 2 temporary traffic control devices and no additional compensation will be allowed therefor.

10-1.24 CONSTRUCTION AREA SIGNS

Construction area signs for temporary traffic control shall be furnished, installed, maintained, and removed when no longer required in conformance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Attention is directed to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. Type II retroreflective sheeting shall not be used on construction area sign panels.

Attention is directed to "Construction Project Information Signs" of these special provisions regarding the number and type of construction project information signs to be furnished, erected, maintained, and removed and disposed of.

Repair to construction area sign panels will not be allowed, except when approved by the Engineer. At nighttime under vehicular headlight illumination, sign panels that exhibit irregular luminance, shadowing or dark blotches shall be immediately replaced at the Contractor's expense.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to commencing excavation for construction area sign posts. The regional notification centers include, but are not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert-Northern California (USA)	(800) 642-2444 (800) 227-2600

Excavations required to install construction area signs shall be performed by hand methods without the use of power equipment, except that power equipment may be used if it is determined there are no utility facilities in the area of the proposed post holes. The post hole diameter, if backfilled with portland cement concrete, shall be at least 4 inches greater than the longer dimension of the post cross section.

Construction area signs placed within 15 feet from the edge of the travel way shall be mounted on stationary mounted sign supports as specified in "Construction Area Traffic Control Devices" of these special provisions.

The Contractor shall maintain accurate information on construction area signs. Signs that are no longer required shall be immediately covered or removed. Signs that convey inaccurate information shall be immediately replaced or the information shall be corrected. Covers shall be replaced when they no longer cover the signs properly. The Contractor shall immediately restore to the original position and location any sign that is displaced or overturned, from any cause, during the progress of work.

10-1.25 MAINTAINING TRAFFIC

Maintaining traffic shall conform to the provisions in Sections 7-1.08, "Public Convenience," Section 7-1.09, "Public Safety," and Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and to the Section entitled, "Public Safety" elsewhere in these special provisions. Nothing in these special provisions shall be construed as relieving the Contractor from the responsibilities specified in Section 7-1.09.

Closure is defined as the closure of a traffic lane or lanes, including shoulder, or connector lanes, within a single traffic control system.

Closures shall conform to the provisions in "Traffic Control System for Lane Closure" and "Closure Requirements and Conditions" of these special provisions.

The Contractor shall perform the following:

- a. The Contractor must submit and obtain Engineer approval of a traffic control plan prior to performing any traffic control on Green Valley and North Shingle Roads. The plan shall address resident ingress and egress to driveways
- b. Temporary lane closures shall be performed in accordance with Standard Plan T12.
- c. Temporary lane closures with reversible controls shall be performed in accordance with Standard Plan T13.

LANE CLOSURE CHART

Chart No. 1																								
Two-Lane Conventional Highway Lane Requirements																								
Location(s): Green Valley Road & North Shingle Road																								
a.m.												p.m.												
FROM HOUR TO HOUR	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
Mondays through Fridays									2	2	R	R	R	R	R	R	2	2	2	2				
Saturdays & Day before designated legal holiday*									R	R	R	R	2	2	2	2	2	2	2					
Sundays*									R	R	R	R	2	2	2	2	2	2	2					
Designated legal holidays																								
Legend:																								
R	A minimum of one paved traffic lane, not less than 11 feet wide, or existing lane width, shall be open for use by public traffic (Reversing Control). Contractor shall not stop traffic in all directions at any time during the use of Reversing Control.																							
2	A minimum of two paved traffic lanes shall be open for use by public traffic. One lane not less than 11 feet wide, or existing lane width, in each direction of travel, except as provided for in these special provisions.																							
	No work will be allowed.																							

*Allowed upon approval of the Engineer.

Lanes shall be closed only during the hours shown on the charts included in this section "Maintaining Traffic." Except work required under Sections 7-1.08 and 7-1.09 of the Standard Specifications, work that interferes with public traffic shall be performed only during the hours shown for lane closures.

The Contractor may close the project area to vehicular traffic from 9:00 p.m. Thursday to 5:00 a.m. Tuesday during a single occasion in order to complete the Stage 2 work. Work may be performed during all hours within this period. This detour period shall not occur during a weekend of the following special events: American River Music Festival (early-September), Jeepers Jamboree (late-July), Coloma Blues Live (early-June). Actual event dates shall be verified closer to the season, as these are estimated dates. The Engineer shall have final approval of the dates of this detour period.

A single closure of five (5) consecutive days shall be allowed for the Contractor to complete all the work (less the final lift) on Peaceful Garden Way.

Personal vehicles of the Contractor's employees shall not be parked on the traveled way or shoulders including any section closed to public traffic.

The Contractor shall notify local authorities, including the El Dorado County Sheriff's Department, and local fire and emergency response units of the Contractor's intent to begin work at least 5 days before work is begun. The Contractor shall cooperate with local authorities relative to handling traffic through the area and shall make arrangements relative to keeping the working area clear of parked vehicles.

Whenever work vehicles or equipment are parked on the shoulder within 6 feet of a traffic lane, the shoulder area shall be closed with fluorescent orange traffic cones or portable delineators placed on a taper in advance of the parked vehicles or equipment and along the edge of the pavement at 25-foot intervals to a point not less than 25 feet past the last vehicle or piece of equipment. A minimum of 9 traffic cones or portable delineators shall be used for the taper. A W20-1

(ROAD WORK AHEAD) or W21-5b (RIGHT/LEFT SHOULDER CLOSED AHEAD) or W21-5 (SHOULDER WORK) sign shall be mounted on a portable sign stand with flags. The sign shall be placed where designated by the Engineer. The sign shall be a minimum of 48" x 48" in size. The Contractor shall immediately restore to the original position and location a traffic cone or delineator that is displaced or overturned, during the progress of work.

Attention is directed to the following parcels located directly adjacent to the work areas: APN 069:251:10, APN 069:241:01 & APN 069:241:14. The Contractor shall provide access to these residents and any visitors, including the U.S. Postal Service and other delivery services, throughout the duration of all construction activities. Access for residents shall consist of paved, base rock, or smoothly graded dirt roadway surface, no less than 12 feet wide, with 20-foot minimum encroachment tapers, suitable for passage by a passenger vehicle. If, residents are required to travel on dirt surface, the surface shall be graded and lightly watered such that dust is not created, but, not over-watered such that it tracks mud or causes loss of traction. Construction areas shall be maintained in a condition suitable for safe passage by residents at all times.

The Contractor shall provide, at all times, access for emergency, law-enforcement, and other essential vehicles to the limits of, and safe passage through the construction area.

Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, first Monday in September, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday.

Minor deviations from the requirements of this section concerning hours of work which do not significantly change the cost of the work may be permitted upon the written request of the Contractor if, in the opinion of the Engineer, public traffic will be better served and the work expedited. These deviations shall not be adopted by the Contractor until the Engineer has approved the deviations in writing. Other modifications will be made by contract change order.

Portable changeable message signs (PCMS) will be in place and operational 3 days in advance of any work affecting public traffic. Additionally, PCMS's shall be in place and operational five (5) days in advance of any lane closures, to inform the public of upcoming contract work and related delays.

All trench plating shall be recessed flush with existing adjacent roadway with non-skid surfaces, as approved by the Engineer.

Full compensation for Maintaining Traffic as shown on the plans, as specified in these special provisions and as directed by the Engineer shall be included in the contract item price paid for traffic control system, and no additional compensation will be allowed therefor.

10-1.26 TRENCH AND EXCAVATION SAFETY

Attention is directed to Sections 5-1.02A, "Excavation Safety Plans," and 7-1.01E, "Trench Safety," of the Standard Specifications and OSHA 29 CFR Part 1926 Construction Industry Regulations and these special provisions.

The Contractor shall provide a safe means of egress in trenches and excavations 5 feet deep and greater by the use of sheeting, shoring, bracing, sloping of the sides of the trench or excavation, or equivalent method.

The work under this section is separate from the trench and excavation work required for construction of the 6" & 20" EID waterline facilities. Attention is directed to Appendix C of these contract documents for measurement and payment information specific to the EID waterline work.

The Contractor shall submit a detailed plan showing the design of the sheeting, shoring, bracing or equivalent method which the Contractor proposes to use during construction to the Engineer in accordance with Section 5-1.02A of the Standard Specifications, except that this plan shall be submitted for the Engineer's review and acknowledgement within five (5) working days prior to any proposed work requiring protection. No excavation or trenching requiring protection shall commence until the "Shoring and Excavation Plan" is approved by the Engineer.

Full compensation for furnishing all labor, tools, equipment, and materials necessary to install sheeting, shoring and bracing, sloping the sides of trenches and excavations 5 feet deep and greater or equivalent method, including the

provisions included in the Section "Temporary Shoring" of these special provisions, in addition to preparing the "Shoring and Excavation Plan" as specified above, in accordance with the plans, the Standard Specifications and these special provisions shall be included in the lump sum contract price paid for trench and excavation safety and no additional compensation will be allowed therefor.

10-1.27 CLOSURE REQUIREMENTS AND CONDITIONS

Lane closures shall conform to the provisions in "Maintaining Traffic" of these special provisions and these special provisions.

The term closure, as used herein, is defined as the closure of a traffic lane or lanes, including ramp or connector lanes, and including shoulders within a single traffic control system.

CLOSURE SCHEDULE

By noon each Monday, the Contractor shall submit a written schedule of planned closures for the following week period, defined as Friday noon through the following Friday noon.

The Closure Schedule shall show the locations and times when the proposed closures are to be in effect. The Contractor shall use the Closure Schedule request forms furnished by the Engineer. Closure Schedules submitted to the Engineer with incomplete, unintelligible or inaccurate information will be returned for correction and resubmittal. The Contractor will be notified of disapproved closures or closures that require coordination with other parties as a condition of approval.

Amendments to the Closure Schedule, including adding additional closures, shall be submitted to the Engineer, in writing, at least 3 working days in advance of a planned closure. Approval of amendments to the Closure Schedule will be at the discretion of the Engineer.

The Contractor shall confirm, in writing, scheduled closures by no later than 8:00 a.m., 3 working days prior to the date on which the closure is to be made. Approval or denial of scheduled closures will be made no later than 4:00 p.m. 2 working days prior to the date on which the closure is to be made. Closures not confirmed or approved will not be allowed.

Confirmed closures that are cancelled due to unsuitable weather may be rescheduled at the discretion of the Engineer for the following working day.

CONTINGENCY PLAN

The Contractor shall prepare a contingency plan for reopening closures to public traffic. The Contractor shall submit the contingency plan for a given operation to the Engineer within one working day of the Engineer's request.

LATE REOPENING OF CLOSURES

If a closure is not reopened to public traffic by the specified time, work shall be suspended in conformance with the provisions in Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications. The Contractor shall not make further closures until the Engineer has accepted a work plan, submitted by the Contractor that will insure that future closures will be reopened to public traffic at the specified time. The Engineer will have 2 working days to accept or reject the Contractor's proposed work plan. The Contractor will not be entitled to compensation for the suspension of work resulting from the late reopening of closures.

COMPENSATION

The Contractor shall notify the Engineer of delay in the Contractor's operations due to the following conditions, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of those conditions, and the Contractor's loss due to that delay could not have been avoided by rescheduling the affected closure or by judicious handling of forces, equipment and plant, the delay will be considered a right of way delay within the meaning of Section 8-1.09, "Right of Way Delays," and compensation for the delay will be determined in conformance with the provisions in Section 8-1.09:

- A. The Contractor's proposed Closure Schedule is denied and his planned closures are within the time frame allowed for closures in "Maintaining Traffic" of these special provisions, except that the Contractor will not be entitled to compensation for amendments to the Closure Schedule that are not approved.
- B. The Contractor is denied a confirmed closure.

Should the Engineer direct the Contractor to remove a closure prior to the time designated in the approved Closure Schedule, delay to the Contractor's schedule due to removal of the closure will be considered a right of way delay within the meaning of Section 8-1.09, "Right of Way Delays," and compensation for the delay will be determined in conformance with the provisions in Section 8-1.09.

10-1.28 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

A traffic control system shall consist of closing traffic lanes in conformance with the details shown on the plans, the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under "Maintaining Traffic" and "Construction Area Signs" of these special provisions, and these special provisions.

The provisions in this section will not relieve the Contractor of responsibility for providing additional devices or taking measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications.

During traffic stripe operations and pavement marker placement operations using bituminous adhesive, traffic shall be controlled, at the option of the Contractor, with either stationary or moving lane closures. During other operations, traffic shall be controlled with stationary lane closures. Attention is directed to the provisions in Section 84-1.04, "Protection From Damage," and Section 85-1.06, "Placement," of the Standard Specifications.

STATIONARY LANE CLOSURE

When lane closures are made for work periods only, at the end of each work period, components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations, designated by the Engineer within the limits of the highway right of way.

Each vehicle used to place, maintain and remove components of a traffic control system on multilane highways shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining or removing the components. Vehicles equipped with Type II flashing arrow sign not involved in placing, maintaining or removing the components when operated within a stationary type lane closure shall only display the caution display mode. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion.

PAYMENT

The contract lump sum price paid for traffic control system shall include full compensation for furnishing all labor (except for flagging costs), materials (including signs and barricades), tools, equipment, and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing and disposing of the components of the traffic control system shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer. Flagging costs will be paid for as provided in Section 12-2.02, "Flagging Costs," of the Standard Specifications.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications shall not apply to the item of traffic control system. Adjustments in compensation for traffic control system will be made only for increased or decreased traffic control system required by changes ordered by the Engineer and will be made on the basis of the cost of the increased or decreased traffic control necessary. The adjustment will be made on a force account basis as provided in Section 9-1.03, "Force Account Payment," of the Standard Specifications for increased work and estimated on the same basis in the case of decreased work.

Traffic control system required by work which is classed as extra work, as provided in Section 4-1.03D of the Standard Specifications, will be paid for as a part of the extra work.

10-1.29 TEMPORARY PAVEMENT DELINEATION

Temporary pavement delineation shall be furnished, placed, maintained, and removed in conformance with the provisions in Section 12-3.01, "General," of the Standard Specifications and these special provisions. Nothing in these special provisions shall be construed as reducing the minimum standards specified in the California MUTCD or as relieving the Contractor from the responsibilities specified in Section 7-1.09, "Public Safety," of the Standard Specifications.

GENERAL

When the work causes obliteration of pavement delineation, temporary or permanent pavement delineation shall be in place before opening the traveled way to public traffic. Laneline or centerline pavement delineation shall be provided for traveled ways open to public traffic.

The Contractor shall perform the work necessary to establish the alignment of temporary pavement delineation, including required lines or markers. Surfaces to receive application of paint temporary pavement delineation shall be dry and free of dirt and loose material. Temporary pavement delineation shall not be applied over existing pavement delineation or other temporary pavement delineation. Temporary pavement delineation shall be maintained until superseded or replaced with a new pattern of temporary pavement delineation or permanent pavement delineation, or as determined by the Engineer.

Temporary pavement markers, including underlying adhesive, that are applied to the final layer of surfacing or existing pavement to remain in place or that conflicts with a subsequent or new traffic pattern for the area shall be removed when no longer required for the direction of public traffic, as determined by the Engineer.

TEMPORARY LANELINE AND CENTERLINE DELINEATION

When lanelines or centerlines are obliterated and temporary pavement delineation to replace the lines is not shown on the plans, the minimum laneline and centerline delineation to be provided for that area shall be temporary pavement markers placed at longitudinal intervals of not more than 24 feet. The temporary pavement markers shall be the same color as the laneline or centerline the pavement markers replace. Temporary pavement markers shall be, at the option of the Contractor, one of the temporary pavement markers listed for short term day/night use (14 days or less) or long term day/night use (180 days or less) in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. The temporary pavement markers shall be placed in conformance with the manufacturer's instructions. Temporary pavement markers for long term day/night use (180 days or less) shall be cemented to the surfacing with the adhesive recommended by the manufacturer, except epoxy adhesive shall not be used to place the temporary pavement markers in areas where removal of the temporary pavement markers will be required.

Temporary laneline or centerline delineation consisting entirely of temporary pavement markers listed for short term day/night use (14 days or less), shall be placed on longitudinal intervals of not more than 24 feet and shall be used for a maximum of 14 days on lanes opened to public traffic. Before the end of the 14 days the permanent pavement delineation shall be placed. If the permanent pavement delineation is not placed within the 14 days, the Contractor shall replace the temporary pavement markers and provide additional temporary pavement delineation and shall bear the cost thereof. The additional temporary pavement delineation to be provided shall be equivalent to the pattern specified for the permanent pavement delineation for the area, as determined by the Engineer.

TEMPORARY TRAFFIC STRIPE (PAINT)

The painted temporary traffic stripe shall be complete in place at the location shown before opening the traveled way to public traffic.

Temporary painted traffic stripe shall conform to the provisions in Section 84-3, "Painted Traffic Stripes and Pavement Markings," of the Standard Specifications. At the option of the Contractor, either one or 2 coats shall be applied regardless of whether on new or existing pavement.

TEMPORARY PAVEMENT MARKING (PAINT)

Temporary pavement marking consisting of painted pavement marking shall be applied and maintained at the locations shown on the plans. The painted temporary pavement marking shall be complete in place at the location shown before opening the traveled way to public traffic.

Temporary painted pavement marking shall conform to the provisions in "Painted Traffic Stripe and Pavement Marking" of the Standard Specifications, except for payment. At the option of the Contractor, either one or 2 coats shall be applied regardless whether on new or existing pavement.

MEASUREMENT AND PAYMENT

Temporary traffic stripe and temporary pavement marking shown on the plans will be measured and paid for in the same manner specified for paint traffic stripe and paint pavement marking in Section 84-3.06, "Measurement," and Section 84-3.07, "Payment," of the Standard Specifications.

Full compensation for maintaining and removing temporary traffic stripe (paint) and temporary pavement marking shall be considered as included in the contract prices paid for the items of work that need to be maintained and no separate payment will be made therefor.

10-1.30 PORTABLE CHANGEABLE MESSAGE SIGN

Portable changeable message signs shall be furnished, placed, operated, and maintained at locations shown on the plans or where designated by the Engineer and shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions. Messages displayed on the portable changeable message signs shall be as specified on the plans and shall conform to Section 12-3.12 "Portable Changeable Message Signs," of the Standard Specifications and "Maintaining Traffic" of these special provisions."

A portable changeable message sign shall be placed in advance of the first warning sign for each stationary lane closure unless otherwise shown on the plans or directed by the Engineer.

A portable changeable message sign shall be placed during speed zone reductions. When used in conjunction with a lane closure, use one portable changeable message sign, with both the speed zone reduction and the lane closure messages.

All portable changeable message signs will be paid for per each sign per each day utilized, as directed by the Engineer.

The contract price paid per sign per day for portable changeable message sign shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing, placing, operating, maintaining, repairing, replacing, transferring from location to location and removing the portable changeable message signs, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.31 TEMPORARY RAILING

Temporary railing (Type K) shall be placed as shown on the plans, as specified in the Standard Specifications or these special provisions or where ordered by the Engineer and shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Reflectors on temporary railing (Type K) shall conform to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

Temporary railing (Type K) shall conform to the details shown on Standard Plan T3. Temporary railing (Type K) fabricated prior to January 1, 1993, and conforming to 1988 Standard Plan B11-30 may be used, provided the fabrication date is printed on the required Certificate of Compliance.

Attention is directed to "Public Safety" and "Order of Work" of these special provisions.

The contract unit price paid for temporary railing (Type K) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing, installing, maintaining, moving, and resetting during a work period for access to the work, and removing from the site of the work when no

longer required (including those damaged by public traffic) temporary railing (Type K), complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.32 PORTABLE DELINEATORS

Portable Delineators shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Portable Delineators shall conform to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

When no longer required for the work as determined by the Engineer, portable delineators shall be removed. Removed portable delineators shall become the property of the Contractor and shall be removed from the site of work.

PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing and maintaining portable delineators, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer shall be considered as included in the contract lump sum price paid for traffic control system and no additional compensation shall be allowed therefor.

10-1.33 TRAFFIC PLASTIC DRUMS

GENERAL

Summary

Work includes placing traffic plastic drums.

Comply with:

1. Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications
2. Section 6F.62, "Drums," of the California Manual On Uniform Traffic Control Devices
3. Traffic plastic drum manufacturer's recommendations for weight and ballast

Definitions

Orange-colored: Orange-colored may be either orange, red-orange, fluorescent orange or fluorescent red-orange in color.

Submittals

Upon request, submit a Certificate of Compliance for Traffic Plastic Drum under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

Quality Control and Assurance

White and orange-colored retroreflective stripes must be a brand of retroreflective sheeting listed on the Department's "Prequalified and Tested Signing and Delineation Materials," of these special provisions. White and orange-colored stripe may be either Type III, Type IV, Type VI, Type VII, Type VIII, or Type IX retroreflective sheeting. Use the same type and brand of retroreflective sheeting for all traffic plastic drums.

MATERIALS

Traffic plastic drum must:

1. Be orange-colored low-density polyethylene
2. Be flexible and collapsible upon vehicle impact
3. Have a weighted-base to maintain an upright position and prevent displacement under passing traffic

Weighted-base must be:

1. Detachable

2. Shaped to prevent rolling upon impact
3. 38-inch maximum outside diameter
4. 4-inch maximum height above the ground surface

CONSTRUCTION

Place a traffic plastic drum on only one side of the traveled way, in a straight line on a tangent alignment, and in a true arc on a curved alignment.

Use only one type of traffic plastic drum on the job site. Do not intermix traffic plastic drums, portable delineators, tubular markers, traffic cones, and Type I and Type II barricades on the same alignment.

Do not use sandbags or comparable ballast.

Traffic plastic drum must be a minimum of 36 inches in height above the traveled way.

Immediately restore a displaced traffic plastic drum to its original location and upright position.

Upon completion of work, traffic plastic drums become your property and must be removed from the job site.

PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing and maintaining traffic plastic drums, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer shall be considered as included in the contract lump sum price paid for traffic control system and no additional compensation shall be allowed therefor.

10-1.34 TEMPORARY CRASH CUSHION SYSTEM

This work shall consist of furnishing, installing, and maintaining temporary crash cushion systems in groupings at each location shown on the plans, as specified in these special provisions or where designated by the Engineer.

Attention is directed to "Public Safety", "Order of Work", and "Temporary Railing" of these special provisions.

Crash cushion shall be an Non-Redirective, Gating Crash Cushion System designed for attachment to permanent or portable barrier, such as the ABSORB 350 Crash Cushion System, Type TL-2 as manufactured by Barrier Systems, Inc., or approved equal, and shall include the items detailed for crash cushion shown on the plans.

The successful bidder may obtain the crash cushion from the manufacturer, Barrier Systems, Inc., 3333 Vaca Valley Parkway, Suite 800, Vacaville, CA 95688, telephone: (888) 800-3691.

The Contractor shall furnish the Engineer one copy of the manufacturer's plan and parts list.

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The Certificate of Compliance shall certify that the crash cushion conforms to the contract plans and specifications, conforms to the prequalified design and material requirements, and was manufactured in conformance with the approved quality control program.

Crash cushion systems shall be installed in conformance with the manufacturer's installation instructions.

Crash cushion systems will be measured by the unit as determined from actual count in place in the completed work.

A Type R or P marker panel shall be attached to the front of the crash cushion system as shown on the plans, when the closest point of the crash cushion grouping is within 12 feet of the traveled way. The marker panel, when required, shall be firmly fastened to the crash cushion system with commercial quality hardware as recommended by the manufacturer or by other methods determined by the Engineer.

At the completion of the project, temporary crash cushion systems shall become the property of the Contractor and shall be removed from the site of the work. Temporary crash cushion systems shall not be installed in the permanent work.

Temporary crash cushion systems will be measured by the unit as determined from the actual count of elements used in the work or ordered by the Engineer at each location. Temporary crash cushion systems and/or their elements placed in excess of the number specified or shown will not be measured nor paid for.

Repairing temporary crash cushion systems and their elements damaged by public traffic will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications. Elements damaged beyond repair by public traffic, when ordered by the Engineer, shall be removed and replaced immediately by the Contractor. Elements replaced due to damage by public traffic will be measured and paid for as temporary crash cushion module.

The contract unit price paid per each element per stage for temporary crash cushion system shall include full compensation for furnishing all labor, materials (including anchor bolts, nuts, washers, and marker panels), tools, equipment, and incidentals, and for doing all the work involved in furnishing, installing, maintaining, moving, and resetting during a work period for access to the work, and removing from the site of the work when no longer required (including those damaged by public traffic) the temporary crash cushion system, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.35 EXISTING HIGHWAY FACILITIES

The work performed in connection with various existing highway facilities shall conform to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

Except as otherwise provided for damaged materials in Section 15-2.04, "Salvage," of the Standard Specifications, the materials to be salvaged shall remain the property of the County, and shall be cleaned, packaged, bundled, tagged, and hauled to the County Maintenance Facility Yard, 2441 Headington Road, Placerville, CA 95667 and stockpiled.

The Contractor shall notify the Engineer a minimum of 48 hours prior to hauling salvaged material to the County facility.

PREPARE EXISTING ROADBED

When subbase, base or pavement material are to be placed on the existing roadbed, the existing roadbed shall first be cleaned of dirt and extraneous material.

When ordered by the Engineer and where shown in the Plans, a leveling course of the material to be placed shall be spread upon the existing roadbed in conformance with the specifications for the type of material being placed. No compensation other than the contract price or prices being paid for the material will be made for this work.

Broken, failed or other unsatisfactory portions of the existing roadbed shall be removed and disposed of outside the highway right of way. The areas and depths to be removed shall be as ordered by the Engineer. The area in the exposed spaces shall be watered and compacted, after which the space shall be filled with material as directed by the Engineer. The cost of all such work will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

Except as otherwise provided, full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in preparing existing roadbed as shown on the plans, as specified herein, and as directed by the Engineer shall be considered as included in the contract price paid for the material to be placed on the existing roadbed.

REMOVE PAVEMENT MARKER

Existing pavement markers, including underlying adhesive, when no longer required for traffic lane delineation as determined by the Engineer, shall be removed and disposed of.

Full compensation for removing and disposing of pavement markers and underlying adhesive shall be considered as included in the contract price paid per ton for hot mix asphalt (Type A) and no separate payment will be made therefor.

RESET MAILBOX

Existing mailbox unit shall be removed and replaced where shown on Peaceful Garden Way.

During construction operations, the mailbox units shall be moved as necessary to clear the way for the Contractor's operations, but shall be accessible for delivery at all times. The Contractor shall work with the United States Postal Service (USPS) and the property owners/residents to ensure the temporary and permanent location of the mailbox units are acceptable. During construction, the mailbox units shall be installed on a temporary moveable foundation/support approved by the USPS and the Engineer. Attention is directed to the period during Stage 3 work, when the entrance to Peaceful Garden Way near the existing mailbox location will be closed.

When construction is complete, the Peaceful Garden mailbox units shall be installed in the final location on a new concrete pad, as shown on the detail included in Appendix E of these special provisions.

Individual mail and newspaper boxes for 2321 North Shingle Rd. (APN 069:251:10), 2301 North Shingle Rd. (APN 069:241:01) and 2277 North Shingle Rd. (APN 069:241:14) shall be temporarily relocated, as necessary, to not interfere with construction operations. The Contractor shall work with USPS and the property owners/residents to ensure the temporary and permanent locations of the mailboxes are acceptable. When construction is complete, the individual mail and newspaper boxes shall be secured to new 4x4 redwood posts.

Full compensation for disposing of existing posts, mounts and hardware; moving and maintaining the mailboxes and newspaper boxes, coordination with USPS and property owners/residents, installing concrete pad, temporarily relocating and resetting mail and newspaper boxes, furnishing new posts, planks and hardware, and replacing any damaged mail or newspaper boxes shall be considered as included in the lump sum contract price paid for reset mailbox and no additional compensation will be allowed therefor.

BRIDGE REMOVAL

Removing bridges or portions of bridges shall conform to the provisions in Section 15-4, "Bridge Removal," of the Standard Specifications and these special provisions.

Bridge removal shall consist of removing the existing Tennessee Creek Bridge at Green Valley Road, Bridge Number 25C-0038, after the "Stage 1" segment of the new Tennessee Creek Bridge at Green Valley Road has been constructed and opened to public traffic.

The Contractor shall notify the El Dorado County Air Quality Management District, (530) 621-6662, no later than ten (10) calendar days prior to beginning of bridge removal, and shall adhere to all notification requirements of the U.S. Environmental Protection Agency's National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61, Subpart M and/or the AQMD.

Removed materials that are not to be salvaged or used in the reconstruction shall become the property of the Contractor and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

The Contractor shall submit a complete bridge removal plan to the Engineer for each bridge listed above, detailing procedures, sequences, and all features required to perform the removal in a safe and controlled manner.

REMOVE FENCE

Attention is directed to "Clearing and Grubbing" of these special provisions for removal of existing fence.

REMOVE METAL BEAM GUARD RAILING

Existing metal beam guard railing, where shown on the plans to be removed, shall be removed and disposed of.

Full compensation for removing cable anchor assemblies, terminal anchor assemblies or steel foundation tubes shall be considered as included in the contract price paid per linear foot for metal beam guard rail (wood post) and no separate payment will be made therefor.

REMOVE ROADSIDE SIGN

Existing roadside signs, at those locations shown on the plans to be removed, shall be removed and disposed of.

Sign panels shown on the plans to be removed shall be salvaged and returned.

Existing roadside signs shall not be removed until replacement signs have been installed or until the existing signs are no longer required for the direction of public traffic, unless otherwise directed by the Engineer.

Full compensation for salvaging sign panels shall be considered as included in the contract unit price paid for remove roadside sign and no separate payment will be made therefor.

REMOVE EARTH BERM

Existing earth berm, on Green Valley Road as shown on the plan sheet C-2 to be removed, shall be removed and disposed of.

Full compensation for earth berm removal shall be considered as included in the contract unit price paid for roadway excavation and no separate payment will be made therefor.

REMOVE AC SURFACING

Existing AC Surfacing, at those locations shown on the plans to be removed, shall be removed. The resulting area shall smoothly graded to drain. For disposal and/or use of removed material, refer to "Earthwork" of these Special Provisions.

Full compensation AC surfacing removal shall be considered as included in the contract unit price paid for roadway excavation and no separate payment will be made therefor.

10-1.36 EARTH MATERIAL CONTAINING LEAD

General

This work includes handling earth material containing lead under the Standard Specifications and these special provisions.

Submittals

Submit a lead compliance plan under Section 7-1.07, "Lead Compliance Plan," of the Standard Specifications.

Project Conditions

Lead is present in earth material within the project limits at average concentrations below 1,000 mg/kg total lead and below 5 mg/l soluble lead. Earth material within the project limits:

1. Is not a hazardous waste
2. Does not require disposal at a permitted landfill or solid waste disposal facility

Lead is typically found within the top 2 feet of material in unpaved areas of the highway. Reuse all excavated earth material within the project limits.

Construction

Handle earth material containing lead under all applicable laws, rules, and regulations, including those of the following agencies:

1. Cal/OSHA
2. CA Regional Water Quality Control Board, Central Valley Region
3. CA Department of Toxic Substances Control

Measurement and Payment

Full compensation for handling earth material containing lead is included in the contract unit price paid per cubic yard for roadway excavation and no additional compensation will be allowed therefor.

10-1.37 REMOVE TRAFFIC STRIPE

This work includes removing existing traffic stripe and pavement marking at the locations shown on the plans.

Submit a lead compliance plan under Section 7-1.07, "Lead Compliance Plan," of the Standard Specifications.

Waste residue from removal of thermoplastic and painted traffic stripe and pavement marking is a non-hazardous waste residue and contains lead in average concentrations less than 1000 mg/kg total lead and 5 mg/L soluble lead. This waste residue does not contain heavy metals in concentrations that exceed thresholds established by the Health and Safety Code and 22 CA Code of Regs and is not regulated under the Federal Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 et seq.

Full compensation for removal of traffic striping, including preparation of a lead compliance plan related to aerially deposited lead as well traffic striping, shall be considered as included in the contract unit price paid for remove traffic stripe and no separate payment will be made therefor.

10-1.38 RELOCATE ROADSIDE SIGN

Existing roadside signs shall be removed and relocated to the new locations shown on the plans.

Each roadside sign shall be installed at the new location on the same day that the sign is removed from its original location.

If sign cannot be placed in permanent location, it will be placed in a temporary location until such time the permanent location is accessible. Coordinate all roadside sign locations with the Engineer.

Two holes shall be drilled in each existing post as required to provide the breakaway feature shown on the plans.

Full compensation for relocating sign panels shall be considered as included in the contract unit price paid for relocate roadside sign and no separate payment will be made therefor.

10-1.39 COLD PLANE ASPHALT CONCRETE PAVEMENT

Existing asphalt concrete pavement shall be cold planed at the locations and to the dimensions shown on the plans.

Planing asphalt concrete pavement shall be performed by the cold planing method. Planing of the asphalt concrete pavement shall not be done by the heater planing method.

Cold planing machines shall be equipped with a cutter head not less than 30 inches in width and shall be operated so that no fumes or smoke will be produced. The cold planing machine shall plane the pavement without requiring the use of a heating device to soften the pavement during or prior to the planing operation.

The depth, width, and shape of the cut shall be as shown on the typical cross sections or as designated by the Engineer. The final cut shall result in a uniform surface conforming to the typical cross sections. The outside lines of the planed area shall be neat and uniform. Planing asphalt concrete pavement operations shall be performed without damage to the surfacing to remain in place.

Planed widths of pavement shall be continuous except for intersections at cross streets where the planning shall be carried around the corners and through the conform lines. Following planning operations, a drop-off of more than 0.15-foot will not be allowed between adjacent lanes open to public traffic.

Where transverse joints are planed in the pavement at conform lines no drop-off shall remain between the existing pavement and the planed area when the pavement is opened to public traffic. If asphalt concrete has not been placed to the level of existing pavement before the pavement is to be opened to public traffic a temporary asphalt concrete taper shall be constructed. Asphalt concrete for temporary tapers shall be placed to the level of the existing pavement and tapered on a slope of 120:1 (Horizontal: Vertical) or flatter to the level of the planed area.

Asphalt concrete for temporary tapers shall be the same quality as the asphalt concrete used elsewhere on the project or shall conform to the material requirements for minor asphalt concrete. Asphalt concrete for tapers shall be compacted by any method that will produce a smooth riding surface. Temporary asphalt concrete tapers shall be completely removed, including the removal of loose material from the underlying surface, before placing the permanent surfacing. The removed material shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Operations shall be scheduled so that not more than 7 days shall elapse between the time when transverse joints are planed in the pavement at the conform lines and the permanent surfacing is placed at the conform lines.

The material planed from the roadway surface, including material deposited in existing gutters or on the adjacent traveled way, shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications. Removal operations of cold planed material shall be concurrent with planing operations and follow within 50 feet of the planer, unless otherwise directed by the Engineer.

Cold plane asphalt concrete pavement will be measured by the square yard. The quantity to be paid for will be the actual area of surface cold planed irrespective of the number of passes required to obtain the depth shown on the plans.

The contract price paid per square yard for cold plane asphalt concrete pavement shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in cold planing asphalt concrete surfacing and disposing of planed material, including furnishing the asphalt concrete for and constructing, maintaining, removing, and disposing of temporary asphalt concrete tapers, as specified in the Standard Specifications and these special provisions and as directed by the Engineer.

10-1.40 CLEARING AND GRUBBING

Clearing and grubbing shall conform to the provisions in Section 16, "Clearing and Grubbing," of the Standard Specifications and these special provisions.

Included within this bid item shall be the removal of the tree at GVR-1 Sta. 15+15 and the remaining stumps from the trees that have been removed by others. The stumps shall be removed and disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Also included within this bid item shall be the removal and disposal of the concrete driveway, as shown on Sheet C-3 of the Plans.

Any existing fence that lies within the limits of the proposed work shall be removed and disposed of, as part of clearing and grubbing activities. Fence elements to be removed include concrete post footings and anchor blocks. There shall be no post holes from fence removal remaining at the completion of the project. The Contractor shall preserve and protect all fence that is **not** in conflict with the proposed work, and shall replace, at his own expense should it become damaged.

Attention is directed to the section "Environmentally Sensitive Area" of these special provisions. The County's Biological Monitor will be on-site during clearing and grubbing activities in the riparian corridor to ensure that no California Red-Legged Frog or Northwestern Pond Turtle is present. Disturbance or removal of vegetation within the riparian area shall not exceed the minimum necessary to construct the project. Clearing and grubbing of the brush and blackberry shrubs shall be performed by hand or with hand tools. Mechanized vehicles shall not be used to clear the brush. All cleared material/vegetation shall be removed out of the riparian/stream zone.

Vegetation shall be cleared and grubbed only within the excavation and embankment slope lines.

At locations where there is no grading adjacent to a bridge or other structure, clearing and grubbing of vegetation shall be limited to 5 feet outside the physical limits of the bridge or structure.

Attention is directed to parcels 069-241-14, 069-340-01, 069-101-28, 069-241-15, 069-101-86, 069-340-02, and 069-101-81, for which the areas of clearing and grubbing shall be completed to the extent only as necessary. Existing vegetation outside the areas to be cleared and grubbed shall be protected from injury or damage resulting from the Contractor's operations.

Activities controlled by the Contractor, except cleanup or other required work, shall be confined within the graded areas of the roadway.

Nothing herein shall be construed as relieving the Contractor of the Contractor's responsibility for final cleanup of the highway as provided in Section 4-1.02, "Final Cleaning Up," of the Standard Specifications.

Full compensation for demolition, removal, and disposal of the facilities specified herein shall be considered as included in the contract lump sum price paid for clearing and grubbing and no additional compensation will be allowed therefor.

10-1.41 EARTHWORK

Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Standard Specifications, and "Removal of Asbestos and Hazardous Substances" and "Dust Control" sections of these special provisions.

This project is in an area of El Dorado County which may contain natural occurring asbestos (NOA), asbestiform containing soils. A trace amount (< 1%) of asbestos was found in 1 of the 8 total samples taken. Refer to "Dust Control" of these special provisions for requirements.

For purposes of bidding, the Contractor shall assume that all export material is less than 1% asbestos. Therefore, the material is non-hazardous for purposes of transport, but may not be used as surfacing material. The Contractor shall provide signed copies of the required receipts for the export material to the Engineer. Full compensation for asbestos testing, transport and disposal of excavated material shall be considered as included in the contract price paid per cubic yard for roadway excavation and no additional compensation will be allowed therefor.

Surplus excavated material shall become the property of the Contractor and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Where a portion of the existing surfacing is to be removed, the outline of the area to be removed shall be cut on a neat line with a power-driven saw to a minimum depth of 0.17-foot before removing the surfacing. Full compensation for cutting the existing surfacing shall be considered as included in the contract price paid per cubic yard for roadway excavation and no additional compensation will be allowed therefor.

Attention is directed to the Foundation Investigation Report regarding the expected subsurface conditions the Contractor can anticipate when performing earthwork. The Contractor shall expect hard and intact rock to be encountered during excavation. Free groundwater levels shall also be expected during excavation near and adjacent to the creek channel, wherein granular, saturated soil layers exist capable of transmitting substantial quantities of seepage to open excavations.

Blasting shall not be used as a means for accomplishing either roadway or structure excavation work.

At the option of the Contractor, and to the extent that material from required excavation within the project limits is available, embankment shall be constructed of imported borrow or of material obtained from required excavation within the project limits or a combination of borrow and material obtained from required excavation within the project limits. The work shall be performed in conformance with the stages of construction shown on the plans. Nonconflicting work in subsequent stages may proceed concurrently with work in preceding stages, provided satisfactory progress is maintained in the preceding stages of construction, and that public safety, convenience, and water supply is maintained.

Excavated materials not used in embankments shall be disposed of in conformance with the provisions of Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications. However, the Contractor's prerogative to dispose of excavated material outside the highway right of way before the embankments are completed is subject to proof that environmentally clear sources of material in sufficient quantity to complete required embankments are available. Obtaining necessary clearances for new borrow sources or for exceeding limitations on previously cleared sources shall be the responsibility of the Contractor. No time extension or other waiver of working days requirements will be granted in the event the Contractor is delayed by reason of there being an insufficient quantity of acceptable material available from environmentally cleared sources to replace excavated material previously disposed of outside the right of way.

Earth berm removal, as shown on plan sheet C-2, remove AC surfacing and existing AC surfacing specified on the plans to be ground and left in place or removed shall be considered included as "Roadway Excavation." It is at the option of the Contractor to use reclaimed material from the existing roadway as fill and/or aggregate base material for project per the provisions specified in the section "Aggregate Base" of these special provisions.

Roadway excavation, structure excavation, and ditch excavation will be paid for as specified in these special provisions and in Sections 19-2, "Roadway Excavation," 19-3, "Structure Excavation and Backfill," and 19-4, "Ditch Excavation," respectively, of the Standard Specifications, and no separate payment will be made therefor.

Attention is directed to Section 19-2.02, "Unsuitable Material" of the Standard Specifications regarding payment for removal and disposal of unsuitable material. The removal and disposal of unstable material, including all components of the abandoned leach field area shown on Sheet C-3 of the plans, as well as suitable material used to replace the unsuitable material that has been removed shall be paid for at the contract price for "Roadway Excavation."

Section 19-7.04, "Measurement," and Section 19-7.05, "Payment," of the Standard Specifications shall not apply.

The quantity shown for roadway excavation in the Proposal Pay Items Bid Price Schedule will be final pay quantity for "Roadway Excavation," and shall conform to the provisions of Section 9-1.015, "FINAL PAY QUANTITIES", of the Standard Specifications, and shall include full payment for all work listed herein, including double handling of material for staging, and no additional compensation will be made therefor.

10-1.42 DEVELOP WATER SUPPLY

Developing a water supply and applying watering shall conform to the provisions in Section 17, "Watering," of the Standard Specifications and these special provisions.

Attention is directed to the various sections of the Standard Specifications and these special provisions which require the use of water for the construction of this project. Attention is directed to Section 7, "Legal Relations and Responsibility," of the Standard Specifications with regards to the Contractor's responsibilities for public convenience, public safety, preservation of property, indemnification, and insurance.

Nothing in this section "Develop Water Supply" shall relieve the Contractor from furnishing an adequate supply of water required for the proper construction of this project in conformance with the provisions in the Standard Specifications or these special provisions or relieve the Contractor from the legal responsibilities defined in Section 7 of the Standard Specifications.

The Contractor shall, whenever possible and not in conflict with the above requirements, minimize the use of water during construction of the project. Watering equipment shall be kept in good working order; water leaks shall be repaired promptly; and washing of equipment, except when necessary for safety or for the protection of equipment, shall be discouraged.

When ordered by the Engineer, a dust palliative conforming to the provisions in Section 18, "Dust Palliative," of the Standard Specifications shall be used to control dust on this project. Dust palliative ordered by the Engineer will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

Attention is directed to Section 17-1.025, "Chemical Additives," of the Standard Specifications. When ordered by the Engineer, a chemical additive shall be added to water used for compaction. The additive shall be approved by the Engineer and shall be used in conformance with instructions issued by the Engineer. Chemical additive ordered by the Engineer will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

The Contractor is advised to contact El Dorado Irrigation District (EID) as to the availability of water sources for the Project work and mitigation. Temporary local water conservation measures may affect the supply of water during this project and it is the Contractor's responsibility to plan for such impacts and meet the requirements of the Contract Documents.

El Dorado Irrigation District
Attn: Daryl Noel
2890 Mosquito Road
Placerville, CA 95667
Phone: (530) 642-4030

The lump sum contract price paid for develop water supply shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in developing a sufficient water supply, as specified in the Standard Specifications and these special provisions and as directed by the Engineer.

10-1.43 EROSION CONTROL (TYPE D)

Erosion control (Type D) shall conform to the provisions in Section 20-3, "Erosion Control," of the Standard Specifications and these special provisions and shall consist of applying erosion control materials to embankment and excavation slopes and other areas disturbed by construction activities.

If the slope on which the erosion control is to be placed is finished during the rainy season as specified in "Water Pollution Control" of these special provisions, the erosion control shall be applied immediately to the slope.

Prior to installing erosion control materials, soil surface preparation shall conform to the provisions in Section 19-2.05, "Slopes," of the Standard Specifications, except that rills and gullies exceeding 2 inches in depth or width shall be leveled. Vegetative growth, temporary erosion control materials, and other debris shall be removed from areas to receive erosion control.

All exposed/disturbed areas and access points within the stream zone left barren of vegetation as a result of the construction activities shall be restored using locally native grass seeds, locally native grass plugs and/or a mix of quick growing sterile non-native grass with locally native grass seeds. Seeded areas shall be covered with broadcast straw and/or jute netted (monofilament erosion blankets are not authorized).

MATERIALS

Materials must comply with Section 20-2, "Materials," of the Standard Specifications and these special provisions.

Seed

Seed must comply with Section 20-2.10, "Seed," of the Standard Specifications. Measure and mix individual seed species in the presence of the Engineer.

Seed must contain at most 1.0 percent total weed seed by weight.

Deliver seed to the job site in unopened separate containers with the seed tag attached. Containers without a seed tag attached are not accepted. The Engineer takes a sample of approximately 1 ounce or 0.25 cup of seed for each seed lot greater than 2 pounds.

Seed mixture shall consist of at least two species from Category A (grasses), at least four species from Category B (legumes) and one from Category C (wildflowers) from the following seed mixture table:

CATEGORY A (GRASSES)

Botanical Name (Common Name)	Percent Purity/ Germination (Minimum)	Pounds Pure Live Seed Per Acre
<i>Bromus carinatus</i> California brome	95/85	15
<i>Elymus glaucia</i> (Blue wild rye)	90/70	15
<i>Festuca californica</i> (California fescue)	90/70	15
<i>Hordeum brachyantherum ssp.</i> <i>Californicum</i> (California barley)	90/70	15
<i>Nassella pulchra</i> (Valley needlegrass)	90/70	15
<i>Poa secunda</i> (Pine bluegrass)	90/70	15

CATEGORY B (LEGUMES)

Botanical Name (Common Name)	Percent Germination (Minimum)	{Pounds Pure Live Seed Per Acre} (Slope Measurement)
<i>Lupinus bicolor</i> (Miniature lupine)	90/70	10
<i>Lupinus succulentus</i> (Arroyo lupine)	90/70	10
<i>Trifolium albopurpureum</i> (Rancheria clover)	90/90	10
<i>Trifolium microphalum</i> (Small-head clover)	90/90	10
<i>Trifolium wildenovii</i> (Tomcat clover)	90/90	10

CATEGORY C (WILDFLOWERS)

Botanical Name (Common Name)	Percent Germination (Minimum)	{Pounds Pure Live Seed Per Acre} (Slope Measurement)
<i>Clarkia purpurea (any subspecies)</i> (Clarkia)	90/70	5
<i>Eschscholzia californica</i> (California poppy)	90/80	5

Seed Sampling Supplies

At the time of seed sampling, provide the Engineer a glassine lined bag and custody seal tag for each seed lot sample.

Commercial Fertilizer

Commercial fertilizer must comply with Section 20-2.02, "Commercial Fertilizer," of the Standard Specifications and have a guaranteed chemical analysis within 2 percent of 16 percent nitrogen, 20 percent phosphoric acid and zero percent water soluble potash.

Straw

Straw must comply with Section 20-2.06, "Straw," of the Standard Specifications and these special provisions.

Wheat and barley straw must be derived from irrigated crops.

Before delivery of wheat or barley straw to the job site, provide the name, address and telephone number of the grower.

All straw shall be hand spread (mechanical blowing equipment shall not be used) prior to applying the Stabilizing Emulsion.

Stabilizing Emulsion

Stabilizing emulsion must comply with Section 20-2.11, "Stabilizing Emulsion," of the Standard Specifications and these special provisions.

Stabilizing emulsion:

- A. Must be in a dry powder form
- B. Must be a processed organic adhesive used as a soil tackifier
- C. May be reemulsifiable

APPLICATION

Apply erosion control materials in separate applications in the following sequence:

- A. Apply the following mixture with hydroseeding equipment at the rates indicated within 60 minutes after the seed has been added to the mixture:

Material	Pounds Per Acre (Slope Measurement)
Seed	75
Fiber	2,000
Commercial Fertilizer	500

- B. Apply straw at the rate of 2 tons per acre based on slope measurements. Incorporation of straw will not be required. Distribute straw evenly without clumping or piling.
- C. Apply the following mixture with hydro-seeding equipment at the corresponding rates:

Material	Pounds Per Acre (Slope Measurement)
Fiber	360
Stabilizing Emulsion (Solids)	135

The ratio of total water to total stabilizing emulsion in the mixture must be as recommended by the manufacturer.

Hydraulic application of materials for erosion control areas shall be applied by hose, from the ground. Erosion control (Type D) materials shall be applied onto the slope face such that the materials are well integrated into the erosion control and in contact with ground surface. Application shall be perpendicular to the slope face such that erosion control materials are not damaged or displaced. Erosion control damaged by the Contractor's operations shall be replaced by the Contractor at the Contractor's expense. Once straw work is started in an area, Contractor shall complete stabilizing emulsion applications in that area on the same working day.

The Engineer may change the rates of erosion control materials to meet field conditions.

MEASUREMENT AND PAYMENT

The contract lump sum price paid for erosion control (Type D) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying erosion control (Type D) complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.44 EROSION CONTROL (BLANKET)

Erosion control (blanket) shall conform to the details shown on the plans, the provisions in Section 20-3, "Erosion Control," of the Standard Specifications and these special provisions.

Erosion control (blanket) work shall consist of applying seed and commercial fertilizer and installing erosion control blanket to the drainage ditches, as designated on the plans.

MATERIALS

Materials shall conform to the provisions in Section 20-2, "Materials," of the Standard Specifications and these special provisions.

Seed

Seed for erosion control (blanket) shall conform to the provisions specified for seed under "Erosion Control (Type D)" of these special provisions.

Erosion Control Blanket

Erosion control blanket shall consist of straw or wood excelsior mats secured in place with wire staples and shall conform to the following:

- A. Excelsior blanket material shall consist of machine produced mats of curled wood excelsior with 80 percent of the fiber 6 inches or longer. The erosion control blanket shall be of consistent thickness and the wood fiber shall be evenly distributed over the entire area of the blanket. The top surface of the blanket shall be covered with a photo-degradable extruded plastic mesh. The blanket shall be smolder resistant without the use of chemical additives and shall be non-toxic and non-injurious to plant and animal life. Erosion control blanket shall be furnished in rolled strips, 48" ± 1 inch in width, and shall have an average mass of 0.95 pound per square yard ± 10 percent at the time of manufacture.
- B. Straw blanket shall be machine produced mats of straw with a lightweight photo-degradable netting on top. The straw shall be adhered to the netting with biodegradable thread or glue strip. The straw erosion control blanket shall be of consistent thickness and the straw shall be evenly distributed over the entire area of the blanket. Straw erosion control blanket shall be furnished in rolled strips with a minimum width of 6.5 feet, minimum length of 80 feet ± 3 feet and a minimum mass of 0.5-pound per square yard.
- C. Staples for erosion control blankets shall be made of 11-gage minimum steel wire and shall be U-shaped with 6-inch legs and a 1-inch crown or 8-inch legs and a 2-inch crown.

APPLICATION

Erosion control (blanket) materials shall be placed in separate applications as follows:

- A. The first application shall consist of applying seed and commercial fertilizer at the rates specified for "Erosion Control (Type D)" of these special provisions.
- B. The second application shall consist of installing the erosion control blanket over the seed and commercial fertilizer application.
- C. Erosion control blanket strips shall be placed loosely on the slope with the longitudinal joints perpendicular to the slope contour lines. Longitudinal and transverse joints of blankets shall be butted snugly against adjacent strips or overlapped according to the manufacturer's recommendations and stapled. Staples shall be driven perpendicular to the slopes, and shall be located and spaced in conformance with the manufacturer's instructions. Ends of the blankets shall be secured in place in conformance with the manufacturer's instructions.

MEASUREMENT AND PAYMENT

The contract price paid per square yard for erosion control (blanket) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing erosion control blanket, complete in place, including furnishing and applying pure live seed, commercial fertilizer, and the materials for the erosion control blanket, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.45 PLANT ESTABLISHMENT WORK

Plant Establishment Work shall conform to the provisions in Section 20-4.08, "Plant Establishment Work," of the Standard Specifications and these special provisions. Plant Establishment Work includes planting of twenty (20) willow cuttings in the riparian area adjacent to the bridge structure, and fifteen (15) oak seedlings within a designated oak tree mitigation area, approximately 0.4 miles northeast of the project site as shown on Sheet PL-1 of the plans.

Plant Establishment Work shall be completed in the fall or early winter, once soil has been moistened by rainfall. All planting shall be completed no later than the end of January. If the Contractor fails to complete all plantings by the end of January following the completion of all bridge work, the Engineer shall notify the Contractor in writing of this deficiency. If within three (3) days of the date of the deficiency letter, the Contractor fails to respond in writing describing the measures to be taken to correct the deficiency, and fails to correct the deficiency, the Engineer will take action to correct the deficiency through the Surety for the performance bond. The Surety shall complete the work including meeting the success criteria specified herein.

RIPARIAN VEGETATION REPLACEMENT

Riparian vegetation replacement areas, as defined in these special provisions, shall be replanted with willow cuttings. A total of twenty (20) willow cuttings shall be planted in areas covered with rock slope protection on each side of each of the bridge abutments. The exact locations of the willow cuttings shall be determined by the Engineer.

Willow cuttings shall not be planted before the completion of the rock slope protection work and not until the soil is moist to a minimum depth of 8 inches, unless otherwise permitted, in writing, by the Engineer.

The Contractor shall notify the Engineer, in writing, at least 10 working days prior to gathering willow cuttings. If willow cutting are not available within the project site, willows shall be purchased from a local nursery.

Willow cuttings shall be taken at random from healthy, vigorous plants. No more than 50 percent of the plants in a designated area shall be cut. No more than 25 percent of each individual plant shall be cut. Cuts shall be made with sharp, clean tools.

Willow cuttings shall be reasonably straight, 20 inches to 24 inches in length, and 3/4 inch to 1-1/2 inch in diameter at the base of the cutting. The top of each willow cutting shall be cut square above a leaf bud, and the base of each willow cutting shall be cut below a leaf bud at an angle of approximately 45 degrees. Willow cuttings shall have leaves and branches trimmed off flush with the stem. Pruned branches and trimmings shall be spread in the designated willow cutting areas so that no areas are left unsightly.

Willow cuttings shall be planted within 48 hours after cutting and shall be kept wet until planted. Willow cuttings not planted within 48 hours after cutting, or allowed to dry out, shall not be used. Willow cuttings not used shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

A root stimulant shall be applied to the willow cuttings immediately prior to planting. The stimulant shall be applied in conformance with the printed instructions of the root stimulant manufacturer. A copy of the instructions shall be furnished to the Engineer prior to applying the stimulant.

The upper 6 inches of rock slope protection at each of the four corners of the new bridge shall be covered with topsoil. Topsoil shall be worked and compacted into the spaces between rock. Planting holes shall be made perpendicular to the top surface ground line and shall be formed with a steel bar or similar tool. Where rock or other hard material prohibits holes from being formed as specified, new holes shall be excavated and the abandoned holes backfilled. An opening in the RSP fabric shall be cut for the plant tube. Plant tubes shall be inserted into the plantings holes.

If the soil in and around the plant hole is not wet prior to planting, the soil shall be watered and maintained in a wet state until the willow cuttings are planted.

Commercial fertilizer (packet) shall be slow or controlled release and shall be in a biodegradable packet form. The packet shall gradually release nutrients over a 12-month period. Each packet shall have a weight of 10 g ± 1 g and shall have the following guaranteed chemical analysis:

Ingredient	Percentage
Nitrogen	20
Phosphoric Acid	10
Water Soluble Potash	5

One commercial fertilizer packet shall be placed in the backfill of each plant to within 6 inches to 8 inches of the soil surface and approximately one inch from the cutting.

The base of willow cuttings shall be planted from 10 inches to 12 inches deep (approximately one-half the willow cutting's length) and shall have from 3 bud to 5 bud scars exposed above the plant hole. Cuttings with more than 5 bud scars exposed shall have excess scars removed by pruning. After planting, the plant holes shall be backfilled with top soil. The top soil shall be distributed evenly within the hole without clods, lumps, or air pockets and compacted without damage to the willow cutting's bark. Compaction shall be adequate to prevent the willow cutting from being easily removed from the soil.

Cuttings shall be watered and maintained in a healthy condition from the time the cuttings are planted until acceptance of the contract. Cuttings that die shall be replaced at the Contractor's expense. The method of planting replacement cuttings shall be as specified in this section for willow cuttings.

OAK TREE REPLACEMENT

Oak tree replacement shall consist of planting fifteen (15) seedlings of Blue Oak (*Quercus douglasii*), Valley Oak (*Quercus lobata*) or Interior Live Oak (*Quercus wislizenii*), or a combination of the three, in the area shown on the plans.

Site Preparation

All weeds, debris, wood chips, and rocks over 2 inches in diameter shall be removed from the planting area to a radius of 3 feet from each planting hole. All rocks and clods over 1 inch diameter shall be removed from the planting pit. The planting pit shall be excavated to a minimum width of two times the diameter of the root ball, and to a depth adequate to allow the root ball to rest on firm soil. The sides and bottom of the planting pit shall be scarified prior to installation of the seedling.

Oak Tree Planting

Planting shall be conducted by a licensed landscape contracting firm with experience in native woodland restoration and tree placement on site shall be supervised by an ISA Certified Arborist or Registered Professional Forester with direct experience working with oak woodlands restoration.

Oak tree seedlings size shall be Treepot 4 (approximately 1 gallon). If Treepot 4 stock is unavailable, Treepot 8 size (approximately 5 gallon) shall be used. Local native oak stock shall be utilized.

The depth of the planting pit shall be verified so that the top of the root ball extends 1 to 2 inches above natural grade. This can be accomplished by placing the tree, while still in the container, in the planting pit and laying a pole across at the original grade.

Remove the tree from the container and trim the root ball according to the following criteria: locate any thick circling roots and either straighten or cut them cleanly. Make three to four vertical cuts 0.5 inches deep around the root ball in order to thin the roots. Spread the bottom roots out, as necessary.

Place the tree in the pit, making sure recommended planting depth is maintained. The native soil shall be backfilled into the planting pit. A 6-inch deep by 24-inch diameter soil watering basin shall be placed around each oak tree at planting. The trees shall be thoroughly watered immediately following planting.

Individual tree planting locations should mimic species-specific distributions associated with slope, aspect, and proximity to water sources. On average, trees should be planted at 20-foot on-center spacing, although a uniform planting layout (e.g. grid) is not recommended. Rather, the planting layout should include gaps and tree clusters that mimic natural conditions. Tree spacing distances should be no less than 6-feet. Planting locations shall be flagged by an ISA Certified Arborist or Registered Professional Forester with direct experience working with oak woodlands restoration. In general, valley and interior live oaks shall be planted in lower portions of the mitigation area and blue oaks planted in the higher areas.

Fencing/Protection

Tree protection fencing, as shown on plans, shall be installed to protect oaks from animal damage, such as from deer and above-ground rodents.

All tree protection fencing shall be left in place after the plant establishment period.

Irrigation

Planted oak seedlings shall be supplied with irrigation water during the plant establishment period. Irrigation shall be supplied to keep the trees vigorous and encourage healthy growth, typically every 7 to 10 days throughout the summer months. The irrigation schedule should be adjusted throughout the year to accommodate changing water needs in response to weather conditions. The irrigation schedule should be suspended as long as possible during the rainy winter season, unless continued drought results in the need to provide irrigation.

Success Criteria

The Contractor shall be responsible for a 90% success rate for oak seedlings and willow cuttings. The success rate will be determined by the Contractor's ISA Certified Arborist or a Registered Professional Forester during the first spring following planting when vegetation is no longer dormant. The Contractor shall replace plants (up to 90%) that do not survive as determined by the Contractor's ISA Certified Arborist or a Registered Professional Forester. After replanting, the plant establishment period shall be extended for 90 days, beginning from the date that any plants not surviving the initial period are replaced.

MEASUREMENT AND PAYMENT

The contract lump sum price paid for plant establishment work shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in Riparian Vegetation Replacement, Oak Tree Replacement and all other Plant Establishment work, including work performed by a Certified Arborist or Registered Professional Forester, maintaining protection fencing, watering, and replacing any plants up to 90% that do not survive the plant establishment period, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.46 AGGREGATE BASE

Aggregate base must comply with Section 26, "Aggregate Bases," of the Standard Specifications and these special provisions.

Aggregate base must be Class 2.

Do not store reclaimed asphalt concrete or aggregate base with reclaimed asphalt concrete within 100 feet measured horizontally of any culvert, watercourse, or bridge.

10-1.47 ASPHALT CONCRETE (TYPE A)

GENERAL

Summary

This work includes producing and placing hot mix asphalt (HMA) Type A using the Method process. Where Asphalt Concrete (AC) is shown on the plans, Hot Mix Asphalt (Type A) shall be used. Comply with Section 39, "Hot Mix Asphalt," of the Standard Specifications.

MATERIALS

Asphalt Binder

The grade of asphalt binder mixed with aggregate for HMA Type A must be PG 64-16.

Aggregate

The aggregate for HMA Type A must comply with the 1/2-inch grading.

CONSTRUCTION

Vertical Joints

Before opening the lane to public traffic, pave shoulders and median borders adjacent to a lane being paved.

Do not leave a vertical joint more than 0.15 foot high between adjacent lanes open to public traffic.

Widening

If widening existing pavement, construct new structural section on both sides of the existing pavement to match the elevation of the existing pavement's edge at each location before placing HMA over the existing pavement.

Conform Tapers

Place additional HMA along the pavement's edge to conform to road connections and private drives. Hand rake, if necessary, and compact the additional HMA to form a smooth conform taper.

Loop Detectors

Loop detector sensor units shall be installed prior to the final HMA lift.

10-1.48 PILING

GENERAL

Piling shall conform to the provisions in Section 49, "Piling," of the Standard Specifications, and these special provisions.

Unless otherwise specified, welding of any work performed in conformance with the provisions in Section 49, "Piling," of the Standard Specifications, shall be in conformance with the requirements in AWS D1.1.

Difficult pile installation is anticipated due to several factors, including but not limited to the presence of caving soils, high ground water, overhead utilities, sound control, vibration monitoring, and traffic control.

The Contractor shall expect hard and intact rock to be encountered during excavation.

CAST-IN-DRILLED-HOLE CONCRETE PILES

Cast-in-drilled-hole concrete piling shall conform to the provisions in Section 49-4, "Cast-In-Place Concrete Piles," of the Standard Specifications and these special provisions.

The provisions of "Welding" of these special provisions shall not apply to temporary steel casings.

Cast-in-drilled-hole concrete piles 24 inches in diameter or larger may be constructed by excavation and depositing concrete under slurry.

Materials

Concrete deposited under slurry shall have a nominal penetration equal to or greater than 3-1/2 inches. Concrete shall be proportioned to prevent excessive bleed water and segregation.

Concrete deposited under slurry shall contain not less than 675 pounds of cementitious material per cubic yard.

The combined aggregate grading used in concrete for cast-in-drilled-hole concrete piling shall be either the one-inch maximum grading, the 1/2-inch maximum grading, or the 3/8-inch maximum grading and shall conform to the requirements in Section 90-3, "Aggregate Gradings," of the Standard Specifications.

Mineral Slurry

Mineral slurry shall be mixed and thoroughly hydrated in slurry tanks, and slurry shall be sampled from the slurry tanks and tested before placement in the drilled hole.

Slurry shall be recirculated or continuously agitated in the drilled hole to maintain the specified properties.

Recirculation shall include removal of drill cuttings from the slurry before discharging the slurry back into the drilled hole. When recirculation is used, the slurry shall be sampled and tested at least every 2 hours after beginning its use until tests show that the samples taken from the slurry tank and from near the bottom of the hole have consistent specified properties. Subsequently, slurry shall be sampled at least twice per shift as long as the specified properties remain consistent.

Slurry that is not recirculated in the drilled hole shall be sampled and tested at least every 2 hours after beginning its use. The slurry shall be sampled mid-height and near the bottom of the hole. Slurry shall be recirculated when tests show that the samples taken from mid-height and near the bottom of the hole do not have consistent specified properties.

Slurry shall also be sampled and tested before final cleaning of the bottom of the hole and again just before placing concrete. Samples shall be taken from mid-height and near the bottom of the hole. Cleaning of the bottom of the hole and placement of the concrete shall not start until tests show that the samples taken from mid-height and near the bottom of the hole have consistent specified properties.

Mineral slurry shall be tested for conformance to the requirements shown in the following table:

MINERAL SLURRY		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - before placement in the drilled hole - during drilling - before final cleaning - immediately before placing concrete	64.3* to 69.1* 64.3* to 75.0*	Mud Weight (Density) API 13B-1 Section 1
Viscosity (seconds/quart) bentonite attapulgate	 28 to 50 28 to 40	Marsh Funnel and Cup API 13B-1 Section 2.2
pH	8.0 to 10.5	Glass Electrode pH Meter or pH Paper
Sand Content (percent) - before final cleaning - immediately before placing concrete	 less than or equal to 4.0	Sand API 13B-1 Section 5
*When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf. Slurry temperature shall be at least 40°F when tested.		

Any caked slurry on the sides or bottom of hole shall be removed before placing reinforcement. If concrete is not placed immediately after placing reinforcement, the reinforcement shall be removed and cleaned of slurry, the sides of the drilled hole cleaned of caked slurry, and the reinforcement again placed in the hole for concrete placement.

Synthetic Slurry

Synthetic slurries shall be used in conformance with the manufacturer's recommendations and these special provisions. The following synthetic slurries may be used:

PRODUCT	MANUFACTURER
SlurryPro CDP	KB Technologies Ltd. 3648 FM 1960 West, Suite 107 Houston, TX 77068 (800) 525-5237
Super Mud	PDS Company c/o Champion Equipment Company 8140 East Rosecrans Avenue Paramount, CA 90723 (562) 634-8180
Shore Pac GCV	CETCO Drilling Products Group 1350 West Shure Drive Arlington Heights, IL 60004 (847) 392-5800
Novagel Polymer	Geo-Tech Drilling Fluids 220 North Zapata Hwy, Suite 11A Laredo, TX 78043 (210) 587-4758

Inclusion of a synthetic slurry on the above list may be obtained by meeting the Department's requirements for synthetic slurries. The requirements can be obtained from the Offices of Structures Design, P.O. Box 168041, MS# 9-4/11G, Sacramento, CA 95816-8041.

Synthetic slurries listed may not be appropriate for a given site.

Synthetic slurries shall not be used in holes drilled in primarily soft or very soft cohesive soils as determined by the Engineer.

A manufacturer's representative, as approved by the Engineer, shall provide technical assistance for the use of their product, shall be at the site before introduction of the synthetic slurry into a drilled hole, and shall remain at the site until released by the Engineer.

Synthetic slurries shall be sampled and tested at both mid-height and near the bottom of the drilled hole. Samples shall be taken and tested during drilling as necessary to verify the control of the properties of the slurry. Samples shall be taken and tested when drilling is complete, but before final cleaning of the bottom of the hole. When samples are in conformance with the requirements shown in the following tables for each slurry product, the bottom of the hole shall be cleaned and any loose or settled material removed. Samples shall be obtained and tested after final cleaning and immediately before placing concrete.

SlurryPro CDP synthetic slurries shall be tested for conformance to the requirements shown in the following table:

SLURRYPRO CDP KB Technologies Ltd.		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - during drilling - before final cleaning - just before placing concrete	less than or equal to 67.0* less than or equal to 64.0*	Mud Weight (Density) API 13B-1 Section 1
Viscosity (seconds/quart) - during drilling - before final cleaning - just before placing concrete	50 to 120 less than or equal to 70	Marsh Funnel and Cup API 13B-1 Section 2.2
pH	6.0 to 11.5	Glass Electrode pH Meter or pH Paper
Sand Content (percent) - before final cleaning - just before placing concrete	less than or equal to 0.5	Sand API 13B-1 Section 5
*When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf. Slurry temperature shall be at least 40°F when tested.		

Super Mud synthetic slurries shall be tested for conformance to the requirements shown in the following table:

SUPER MUD PDS Company		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - before final cleaning - just before placing concrete	less than or equal to 64.0*	Mud Weight (Density) API 13B-1 Section 1
Viscosity (seconds/quart) - during drilling - before final cleaning - just before placing concrete	32 to 60 less than or equal to 60	Marsh Funnel and Cup API 13B-1 Section 2.2
pH	8.0 to 10.0	Glass Electrode pH Meter or pH Paper
Sand Content (percent) - before final cleaning - just before placing concrete	less than or equal to 0.5	Sand API 13B-1 Section 5
*When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf. Slurry temperature shall be at least 40°F when tested.		

Shore Pac GCV synthetic slurries shall be tested for conformance to the requirements shown in the following table:

Shore Pac GCV CETCO Drilling Products Group		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - before final cleaning - just before placing concrete	less than or equal to 64.0*	Mud Weight (Density) API 13B-1 Section 1
Viscosity (seconds/quart) - during drilling - before final cleaning - just before placing concrete	33 to 74 less than or equal to 57	Marsh Funnel and Cup API 13B-1 Section 2.2
pH	8.0 to 11.0	Glass Electrode pH Meter or pH Paper
Sand Content (percent) - before final cleaning - just before placing concrete	less than or equal to 0.5	Sand API 13B-1 Section 5
*When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf. Slurry temperature shall be at least 40°F when tested.		

Novagel Polymer synthetic slurries shall be tested for conformance to the requirements shown in the following table:

NOVAGEL POLYMER Geo-Tech Drilling Fluids		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - during drilling - before final cleaning - just before placing concrete	less than or equal to 67.0* less than or equal to 64.0*	Mud Weight (Density) API 13B-1 Section 1
Viscosity (seconds/quart) - during drilling - before final cleaning - just before placing concrete	45 to 104 less than or equal to 104	Marsh Funnel and Cup API 13B-1 Section 2.2
pH	6.0 to 11.5	Glass Electrode pH Meter or pH Paper
Sand Content (percent) - before final cleaning - just before placing concrete	less than or equal to 0.5	Sand API 13B-1 Section 5
*When approved by the Engineer, slurry may be used in salt water, and the allowable densities may be increased up to 2 pcf. Slurry temperature shall be at least 40°F when tested.		

Water Slurry

At the option of the Contractor, water may be used as slurry when casing is used for the entire length of the drilled hole.

Water slurry shall be tested for conformance to the requirements shown in the following table:

WATER SLURRY		
PROPERTY	REQUIREMENT	TEST
Density (pcf) - before final cleaning - just before placing concrete	63.5*	Mud Weight (Density) API 13B-1 Section 1
Sand Content (percent) - before final cleaning - just before placing concrete	less than or equal to 0.5	Sand API 13B-1 Section 5
*When approved by the Engineer, salt water slurry may be used and the allowable densities may be increased up to 2 pcf.		

Construction

The Contractor shall submit a Pile Placing Plan (PPP) to the Engineer for approval prior to producing the test batch for cast-in-drilled-hole concrete piling and at least 10 working days prior to constructing piling. The PPP shall include complete descriptions, details, and supporting calculations as listed below:

A. Requirements for all cast-in-drilled-hole concrete piling:

1. Concrete mix design, certified test data, and trial batch reports.
2. Drilling or coring methods and equipment.
3. Proposed method for casing installation and removal when necessary.
4. Plan view drawing of pile showing reinforcement.
5. Methods for placing, positioning, and supporting bar reinforcement.
6. Methods and equipment for accurately determining the depth of concrete and actual and theoretical volume placed, including effects on volume of concrete when any casings are withdrawn.
7. Methods and equipment for verifying that the bottom of the drilled hole is clean prior to placing concrete.
8. Methods and equipment for preventing upward movement of reinforcement, including the Contractor's means of detecting and measuring upward movement during concrete placement operations.

B. Additional requirements when concrete is placed under slurry:

1. Plan view drawing of pile showing inspection pipes.
2. Concrete batching, delivery, and placing systems, including time schedules and capacities therefor. Time schedules shall include the time required for each concrete placing operation at each pile.
3. Concrete placing rate calculations. When requested by the Engineer, calculations shall be based on the initial pump pressures or static head on the concrete and losses throughout the placing system, including anticipated head of slurry and concrete to be displaced.
4. Suppliers' test reports on the physical and chemical properties of the slurry and any proposed slurry chemical additives, including Material Safety Data Sheet.
5. Slurry testing equipment and procedures.
6. Methods of removal and disposal of excavation, slurry, and contaminated concrete, including removal rates.
7. Methods and equipment for slurry agitating, recirculating, and cleaning.

In addition to compressive strength requirements, the consistency of the concrete to be deposited under slurry shall be verified before use by producing a test batch. The test batch shall be produced and delivered to the project under conditions and in time periods similar to those expected during the placement of concrete in the piles. Concrete for the test batch shall be placed in an excavated hole or suitable container of adequate size to allow for testing as specified herein. Depositing of test batch concrete under slurry will not be required. In addition to meeting the specified nominal penetration, the test batch shall meet the following requirements:

- A. For piles where the time required for each concrete placing operation, as submitted in the PPP, will be 2 hours or less, the test batch shall demonstrate that the proposed concrete mix design achieves either a penetration of at least 2 inches or a slump of at least 5 inches after twice that time has elapsed.

- B. For piles where the time required for each concrete placing operation, as submitted in the PPP, will be more than 2 hours, the test batch shall demonstrate that the proposed concrete mix design achieves either a penetration of at least 2 inches or a slump of at least 5 inches after that time plus 2 hours has elapsed.

The time period shall begin at the start of placement. The concrete shall not be vibrated or agitated during the test period. Penetration tests shall be performed in conformance with the requirements in California Test 533. Slump tests shall be performed in conformance with the requirements in ASTM Designation: C 143/C143M. Upon completion of testing, the concrete shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

The concrete deposited under slurry shall be carefully placed in a compact, monolithic mass and by a method that will prevent washing of the concrete. Concrete deposited under slurry need not be vibrated. Placing concrete shall be a continuous operation lasting not more than the time required for each concrete placing operation at each pile, as submitted in the PPP, unless otherwise approved in writing by the Engineer. The concrete shall be placed with concrete pumps and delivery tube system of adequate number and size to complete the placing of concrete in the time specified. The delivery tube system shall consist of one of the following:

- A. A tremie tube or tubes, each of which are at least 10 inches in diameter, fed by one or more concrete pumps.
- B. One or more concrete pump tubes, each fed by a single concrete pump.

The delivery tube system shall consist of watertight tubes with sufficient rigidity to keep the ends always in the mass of concrete placed. If only one delivery tube is utilized to place the concrete, the tube shall be placed near the center of the drilled hole. Multiple tubes shall be uniformly spaced in the hole. Internal bracing for the steel reinforcing cage shall accommodate the delivery tube system. Tremies shall not be used for piles without space for a 10-inch tube.

Spillage of concrete into the slurry during concrete placing operations shall not be allowed. Delivery tubes shall be capped with a watertight cap, or plugged above the slurry level with a good quality, tight fitting, moving plug that will expel the slurry from the tube as the tube is charged with concrete. The cap or plug shall be designed to be released as the tube is charged. The pump discharge or tremie tube shall extend to the bottom of the hole before charging the tube with concrete. After charging the delivery tube system with concrete, the flow of concrete through a tube shall be induced by slightly raising the discharge end. During concrete placement, the tip of the delivery tube shall be maintained as follows to prevent reentry of the slurry into the tube. Until at least 10 feet of concrete has been placed, the tip of the delivery tube shall be within 6 inches of the bottom of the drilled hole, and then the embedment of the tip shall be maintained at least 10 feet below the top surface of the concrete. Rapid raising or lowering of the delivery tube shall not be permitted. If the seal is lost or the delivery tube becomes plugged and must be removed, the tube shall be withdrawn, the tube cleaned, the tip of the tube capped to prevent entrance of the slurry, and the operation restarted by pushing the capped tube 10 feet into the concrete and then reinitiating the flow of concrete.

When slurry is used, a fully operational standby concrete pump, adequate to complete the work in the time specified, shall be provided at the site during concrete placement. The slurry level shall be maintained within 12 inches of the top of the drilled hole.

A log of concrete placement for each drilled hole shall be maintained by the Contractor when concrete is deposited under slurry. The log shall show the pile location, tip elevation, dates of excavation and concrete placement, total quantity of concrete deposited, length and tip elevation of any casing, and details of any hole stabilization method and materials used. The log shall include a 8-1/2" x 11" sized graph of the concrete placed versus depth of hole filled. The graph shall be plotted continuously throughout placing of concrete. The depth of drilled hole filled shall be plotted vertically with the pile tip oriented at the bottom and the quantity of concrete shall be plotted horizontally. Readings shall be made at least at each 5 feet of pile depth, and the time of the reading shall be indicated. The graph shall be labeled with the pile location, tip elevation, cutoff elevation, and the dates of excavation and concrete placement. The log shall be delivered to the Engineer within one working day of completion of placing concrete in the pile.

After placing reinforcement and prior to placing concrete in the drilled hole, if drill cuttings settle out of the slurry, the bottom of the drilled hole shall be cleaned. The Contractor shall verify that the bottom of the drilled hole is clean.

Concrete placed under slurry shall be maintained at a level at least 5 feet above the bottom of the temporary steel casing. The withdrawal of casings shall not cause contamination of the concrete with slurry.

Material resulting from using slurry shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Temporary Steel Casing

Temporary steel casings shall be furnished and placed tight in the hole. Temporary steel casings shall be watertight and of sufficient strength to withstand the loads from installation procedures, lateral concrete pressures, and earth pressures.

The Contractor shall furnish temporary steel casing suitable for use in constructing the 24-inch cast-in-drilled-hole concrete piles to provide sufficient casing to fully case the longest pile anticipated as shown on the plans. The Contractor shall install the temporary steel casing during the construction of each 24-inch cast-in-drilled-hole concrete pile and remove the casing, in accordance with these special provisions, as concrete is placed.

Acceptance Testing and Mitigation

The Contractor shall provide a minimum of three vertical inspection pipes for acceptance testing in all cast-in-drilled-hole concrete piles that are 24 inches in diameter or larger, except when the holes are dry.

Inspection pipes shall be Schedule 40 polyvinyl chloride pipes with a nominal inside diameter of 2 inches. Each inspection pipe shall be capped top and bottom and shall have watertight couplers to provide a clean, dry and unobstructed 2-inch-diameter clear opening from 3 feet above the pile cutoff down to the bottom of the reinforcing cage.

If the Contractor drills the hole below the specified tip elevation, the reinforcement and the inspection pipes shall be extended to 2 inches clear of the bottom of the drilled hole.

Inspection pipes shall be placed around the pile, inside the outermost spiral or hoop reinforcement, and 3 inches clear of the vertical reinforcement, at a uniform spacing along the circle passing through the centers of inspection pipes. A minimum of 3 inspection pipes per pile shall be used. When the vertical reinforcement is not bundled and each bar is not more than one inch in diameter, inspection pipes may be placed 2 inches clear of the vertical reinforcement. The inspection pipes shall be placed to provide the maximum diameter circle that passes through the centers of the inspection pipes while maintaining the clear spacing required herein. The pipes shall be installed in straight alignment, parallel to the main reinforcement, and securely fastened in place to prevent misalignment during installation of the reinforcement and placing of concrete in the hole.

The Contractor shall log the location of the inspection pipe couplers with respect to the plane of pile cut off, and these logs shall be delivered to the Engineer upon completion of the placement of concrete in the drilled hole.

After placing concrete and before requesting acceptance tests, each inspection pipe shall be tested by the Contractor in the presence of the Engineer by passing a 1.9-inch-diameter rigid cylinder 2 feet long through the complete length of pipe. If the 1.9-inch-diameter rigid cylinder fails to pass any of the inspection pipes, the Contractor shall attempt to pass a 1 1/4-inch-diameter rigid cylinder 4.5 feet long through the complete length of those pipes in the presence of the Engineer. If an inspection pipe fails to pass the 1 1/4-inch-diameter cylinder, the Contractor shall immediately fill all inspection pipes in the pile with water.

The Contractor shall replace each inspection pipe that does not pass the 1 1/4-inch-diameter cylinder with a 2 inch-diameter hole cored through the concrete for the entire length of the pile. Cored holes shall be located as close as possible to the inspection pipes they are replacing and shall be no more than 6 inches inside the reinforcement. Coring shall not damage the pile reinforcement. Cored holes shall be made with a double wall core barrel system utilizing a split tube type inner barrel. Coring with a solid type inner barrel will not be allowed. Coring methods and equipment shall provide intact cores for the entire length of the pile concrete. The coring operation shall be logged by an Engineering Geologist or Civil Engineer licensed in the State of California and experienced in core logging. Coring logs shall include complete descriptions of inclusions and voids encountered during coring, and shall be delivered to the Engineer upon completion. Concrete cores shall be preserved, identified with the exact location the core was recovered from within the pile, and made available for inspection by the Engineer.

Acceptance tests of the concrete will be made by the Engineer, without cost to the Contractor. Acceptance tests will evaluate the homogeneity of the placed concrete. Tests may include gamma-gamma logging, crosshole sonic logging,

and other means of inspection selected by the Engineer. The Contractor shall not conduct operations within 25 feet of the gamma-gamma logging operations. The Contractor shall separate reinforcing steel as necessary to allow the Engineer access to the inspection pipes to perform acceptance testing. After requesting acceptance tests and providing access to the piling, the Contractor shall allow 28 days for the Engineer to conduct these tests and make determination of acceptance if the 1.9 inch-diameter cylinder passed all inspection pipes, and 35 days if only the 1 1/4 inch-diameter cylinder passed all inspection pipes. Should the Engineer fail to complete these tests within the time allowance, and if in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in inspection, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

All inspection pipes and cored holes in a pile shall be dewatered and filled with grout after notification by the Engineer that the pile is acceptable. Placement and removal of water in the inspection pipes shall be at the Contractor's expense. Grout shall conform to the provisions in Section 50-1.09, "Bonding and Grouting," of the Standard Specifications. The inspection pipes and holes shall be filled using grout tubes that extend to the bottom of the pipe or hole or into the grout already placed.

If acceptance testing performed by the Engineer determines that a pile does not meet the requirements of the specifications, then that pile will be rejected and all depositing of concrete under slurry or concrete placed using temporary casing shall be suspended until written changes to the methods of pile construction are approved in writing by the Engineer.

The Contractor shall submit to the Engineer for approval a Pile Mitigation Plan (PMP) for repair, supplementation, or replacement for each rejected cast-in-drilled-hole concrete pile, and this PMP shall conform to the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. Prior to submitting this PMP, the Engineer will hold a repair feasibility meeting with the Contractor to discuss the feasibility of repairing rejected piling. The Engineer will consider the size of the defect, the location of the defect, and the design information and corrosion protection considerations for the pile. This information will be made available to the Contractor, if appropriate, for the development of the PMP. If the Engineer determines that it is not feasible to repair the rejected pile, the Contractor shall not include repair as a means of mitigation and shall proceed with the submittal of a PMP for replacement or supplementation of the rejected pile.

If the Engineer determines that a rejected pile does not require mitigation due to structural, geotechnical, or corrosion concerns, the Contractor may elect to 1) repair the pile per the approved PMP, or 2) not repair anomalies found during acceptance testing of that pile. For such unrepaired piles, the Contractor shall pay to the County, \$500 per cubic yard for the portion of the pile affected by the anomalies. The volume, in cubic yards, of the portion of the pile affected by the anomalies, shall be calculated as the area of the cross section of the pile affected by each anomaly, in square yards, as determined by the Engineer, multiplied by the distance, in yards, from the top of each anomaly to the specified tip of the pile. If the volume calculated for one anomaly overlaps the volume calculated for additional anomalies within the pile, the calculated volume for the overlap shall only be counted once. In no case shall the amount of the payment to the County for any such pile be less than \$500. The Department may deduct the amount from any moneys due, or that may become due the Contractor under the contract.

PMPs shall include the following:

- A. The designation and location of the pile addressed by the PMP.
- B. A review of the structural, geotechnical, and corrosion design requirements of the rejected pile.
- C. A step by step description of the mitigation work to be performed, including drawings if necessary.
- D. An assessment of how the proposed mitigation work will address the structural, geotechnical, and corrosion design requirements of the rejected pile.
- E. Methods for preservation or restoration of existing earthen materials.
- F. A list of affected facilities, if any, with methods and equipment for protection of these facilities during mitigation.
- G. The County assigned contract number, bridge number, full name of the structure as shown on the contract plans, and the Contractor's (and Subcontractor's if applicable) name on each sheet.
- H. A list of materials, with quantity estimates, and personnel, with qualifications, to be used to perform the mitigation work.
- I. The seal and signature of an engineer who is licensed as a Civil Engineer by the State of California.

For rejected piles to be repaired, the Contractor shall submit a PMP that contains the following additional information:

- A. An assessment of the nature and size of the anomalies in the rejected pile.
- B. Provisions for access for additional pile testing if required by the Engineer.

For rejected piles to be replaced or supplemented, the Contractor shall submit a PMP that contains the following additional information:

- A. The proposed location and size of additional piling.
- B. Structural details and calculations for any modification to the structure to accommodate the replacement or supplemental piling.

All provisions for cast-in-drilled-hole concrete piling shall apply to replacement piling.

The Contractor shall allow the Engineer 28 days to review the PMP after a complete submittal has been received.

Should the Engineer fail to review the complete PMP submittal within the time specified, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the PMP, an extension of time commensurate with the delay in completion of the work thus caused will be granted in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

When repairs are performed, the Contractor shall submit a Pile Mitigation Report (PMR) to the Engineer within 10 days of completion of the repair. This PMR shall state exactly what repair work was performed and quantify the success of the repairs relative to the submitted PMP. The PMR shall be stamped and signed by an engineer who is licensed as a Civil Engineer by the State of California. The PMR shall show the County assigned contract number, bridge number, full name of the structure as shown on the contract plans, and the Contractor (and subcontractor if applicable) name on each sheet. The Engineer will be the sole judge as to whether a mitigation proposal is acceptable, the mitigation efforts are successful, and to whether additional repairs, removal and replacement, or construction of a supplemental foundation is required.

MEASUREMENT AND PAYMENT (PILING)

Measurement and payment for the various types and classes of piles shall conform to the provisions in Sections 49-6.01, "Measurement," and 49-6.02, "Payment," of the Standard Specifications and these special provisions.

Payment for cast-in-place concrete piling shall conform to the provisions in Section 49-6.02, "Payment," of the Standard Specifications and these special provisions except that, when the diameter of cast-in-place concrete piling is shown on the plans as 24 inches or larger, reinforcement in the piling will be paid for by the pound as bar reinforcing steel (bridge).

Full compensation for cast-in-drilled-hole concrete piling required by the various electrical items shall be considered as included in the contract price paid for the various electrical items requiring the cast-in-drilled-hole concrete pile foundation and no separate payment will be made therefor.

Full compensation for temporary casing, slurry, depositing concrete under slurry, test batches, inspection pipes, filling inspection holes and pipes with grout, drilling oversized cast-in-drilled-hole concrete piling, filling cave-ins and oversized piles with concrete, and re-drilling through concrete, shall be considered as included in the contract prices paid per linear foot for cast-in-drilled-hole concrete piling of the types and sizes, as shown on the plans, and these special provisions, and no additional compensation will be allowed therefor.

10-1.49 PRESTRESSING CONCRETE

Prestressing concrete shall conform to the provisions in Section 50, "Prestressing Concrete," of the Standard Specifications and these special provisions.

The number of working drawings to be submitted to the Engineer for initial review shall be 6 sets.

10-1.50 CONCRETE STRUCTURES

Portland cement concrete structures shall conform to the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these special provisions.

GENERAL

Shotcrete shall not be used as an alternative construction method for reinforced concrete members unless otherwise specified.

Neoprene strip shall be furnished and installed at abutment backwall joint protection in conformance with the details shown on the plans, the provisions in the Standard Specifications, and these special provisions.

Furnishing and installing neoprene strip shall conform to the requirements for strip waterstops as provided in Section 51-1.145, "Strip Waterstops," of the Standard Specifications, except that the protective board will not be required.

FALSEWORK

Falsework shall conform to the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these special provisions.

In addition to the provisions in Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications, the time to be provided for the Engineer's review of the working drawings shall be five weeks.

The Contractor's engineer who signs the falsework drawings shall also certify in writing that the falsework is constructed in conformance with the approved drawings and the contract specifications prior to placing concrete. This certification shall include performing any testing necessary to verify the ability of the falsework members to sustain the stresses required by the falsework design. The engineer who signs the drawings may designate a representative to perform this certification. The designated representative shall be qualified to perform this work and shall have at least 3 years of combined experience in falsework design or supervising falsework construction. The Contractor shall certify the experience of the designated representative in writing and provide supporting documentation demonstrating the required experience if requested by the Engineer.

Welding and Nondestructive Testing

Welding of steel members, except for previously welded splices and except for when fillet welds are used where load demands are less than or equal to 1,000 pounds per inch for each 1/8 inch of fillet weld, shall conform to AWS D1.1 or other recognized welding standard. The welding standard to be utilized shall be specified by the Contractor on the working drawings. Previously welded splices for falsework members are defined as splices made prior to the member being shipped to the project site.

Splices made by field welding of steel beams at the project site shall undergo nondestructive testing (NDT). At the option of the Contractor, either ultrasonic testing (UT) or radiographic testing (RT) shall be used as the method of NDT for each field weld and any repair made to a previously welded splice in a steel beam. Testing shall be performed at locations selected by the Contractor. The length of a splice weld where NDT is to be performed, shall be a cumulative weld length equal to 25 percent of the original splice weld length. The cover pass shall be ground smooth at the locations to be tested. The acceptance criteria shall conform to the requirements of AWS D1.1, Section 6, for cyclically loaded nontubular connections subject to tensile stress. If repairs are required in a portion of the weld, additional NDT shall be performed on the repaired sections. The NDT method chosen shall be used for an entire splice evaluation including any required repairs.

For all field welded splices, the Contractor shall furnish to the Engineer a letter of certification which certifies that all welding and NDT, including visual inspection, are in conformance with the specifications and the welding standard shown on the approved working drawings. This letter of certification shall be signed by an engineer who is registered as a Civil Engineer in the State of California and shall be provided prior to placing any concrete for which the falsework is being erected to support.

For previously welded splices, the Contractor shall determine and perform all necessary testing and inspection required to certify the ability of the falsework members to sustain the stresses required by the falsework design. This welding certification shall (1) itemize the testing and inspection methods used, (2) include the tracking and identifying documents for previously welded members, (3) be signed by an engineer who is registered as a Civil Engineer in the State of California, (4) and shall be provided prior to erecting the members.

DECK CLOSURE POURS

Where a deck closure pour is shown on the plans, reinforcement protruding into the closure space and forms for the closure pour shall conform to the following:

- A. During the time of placement of concrete in the deck, other than for the closure pour itself, reinforcing steel which protrudes into the closure space shall be completely free from any connection to the reinforcing steel, concrete, or other attachments of the adjacent structure, including forms. The reinforcing steel shall remain free of any connection for a period of not less than 24 hours following completion of the pour.
- B. Forms for the closure pour shall be supported from the superstructure on both sides of the closure space.

ELASTOMERIC BEARING PADS

Elastomeric bearing pads shall conform to the provisions in Section 51-1.12H, "Elastomeric Bearing Pads," of the Standard Specifications.

MEASUREMENT AND PAYMENT

Measurement and payment for concrete in structures shall conform to the provisions in Section 51-1.22, "Measurement," and Section 51-1.23, "Payment," of the Standard Specifications and these special provisions.

Full compensation for furnishing and installing plastic pipe located at the vertical drains used behind retaining walls, wingwalls and bridge abutments, including horizontal or sloping drains down slopes, including excavation and backfill involved in placing the plastic pipe, shall be considered as included in the contract price paid per cubic yard for the structural concrete (bridge footing) and no separate payment will be made therefor.

10-1.51 STRUCTURE APPROACH SLABS (TYPE EQ)

This work shall consist of constructing reinforced concrete approach slabs with structure approach drainage system at structure approaches in conformance with the details shown on the plans, the provisions in Section 51, "Concrete Structures," of the Standard Specifications, and these special provisions.

GENERAL

Attention is directed to "Geosynthetics" of the Amendments to the Standard Specifications.

STRUCTURE APPROACH DRAINAGE SYSTEM

Geocomposite Drain

Geocomposite drain shall consist of a manufactured core not less than 0.25 inch thick nor more than 2 inches thick with one or both sides covered with a layer of filter fabric that will provide a drainage void. The drain shall produce a flow rate through the drainage void of at least 2 gallons per minute per foot of width at a hydraulic gradient of 1.0 and a minimum externally applied pressure of 3,500 psf.

A Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications shall be furnished for the geocomposite drain certifying that the drain complies with these special provisions. The Certificate of Compliance shall be accompanied by a flow capability graph for the geocomposite drain showing flow rates and the externally applied pressures and hydraulic gradients. The flow capability graph shall be stamped with the verification of an independent testing laboratory.

Filter fabric for the geocomposite drain shall conform to the provisions for Class B filter fabric for underdrains in Section 88, "Geosynthetics," of the Amendments to the Standard Specifications.

The manufactured core shall be either a preformed grid of embossed plastic, a mat of random shapes of plastic fibers, a drainage net consisting of a uniform pattern of polymeric strands forming 2 sets of continuous flow channels, or a system of plastic pillars and interconnections forming a semirigid mat.

The core material and filter fabric shall be capable of maintaining the drainage void for the entire height of geocomposite drain. Filter fabric shall be integrally bonded to the side of the core material with the drainage void. Core material manufactured from impermeable plastic sheeting having non-connecting corrugations shall be placed with the corrugations approximately perpendicular to the drainage collection system.

The geocomposite drain shall be installed with the drainage void and the filter fabric facing the embankment. The fabric facing the embankment side shall overlap a minimum of 3 inches at all joints and wrap around the exterior edges a minimum of 3 inches beyond the exterior edge. If additional fabric is needed to provide overlap at joints and wraparound at edges, the added fabric shall overlap the fabric on the geocomposite drain at least 6 inches and be attached thereto.

Should the fabric on the geocomposite drain be torn or punctured, the damaged section shall be replaced completely or repaired by placing a piece of fabric that is large enough to cover the damaged area and provide a 6-inch overlap.

Plastic Pipe

Plastic pipe shall conform to the provisions for pipe for edge drains and edge drain outlets in Section 68-3, "Edge Drains," of the Standard Specifications.

Drainage Pads

Concrete for use in drainage pads shall be minor concrete, except the concrete shall contain not less than 505 pounds of cementitious material per cubic yard.

Treated Permeable Base At Bottom Of Geocomposite Drains

Treated permeable base to be placed around the slotted plastic pipe at the bottom of geocomposite drains shall consist of constructing a cement treated permeable base in accordance with Section 29, "Treated Permeable Bases," of the Standard Specifications and these special provisions. If asphalt treated permeable base is used, it shall be placed at a temperature of not less than 180 °F nor more than 230 °F.

The type of treatment to be used shall be at the option of the Contractor.

The Contractor shall notify the Engineer in writing, not less than 30 days prior to the start of placing the treated permeable base, which type of treated permeable base will be furnished. Once the Contractor has notified the Engineer of the selection, the type to be furnished shall not be changed without a prior written request to do so and approval thereof in writing by the Engineer.

The filter fabric to be placed over the treated permeable base at the bottom of geocomposite drains shall conform to the provisions for Class B filter fabric for edge drains in Section 88, "Geosynthetics," of the Amendments to the Standard Specifications.

Adjacent borders of the filter fabric shall be overlapped from 12 inches to 18 inches or stitched. When the fabric is joined by stitching, it shall be stitched with yarn of a contrasting color. The size and composition of the yarn shall be as recommended by the fabric manufacturer. The number of stitches per one inch of seam shall be 5 to 7.

APPROACH SLABS

Concrete for use in approach slabs shall contain not less than 675 pounds of cementitious material per cubic yard.

Steel components of abutment ties, including plates, nuts, washers, and rods, shall conform to the provisions in Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications.

The bent plate at the concrete barrier joint shall conform to the provision in Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications.

Structure approach slabs shall be cured for not less than 5 days prior to opening to public traffic.

The top surface of approach slabs shall be finished and treated in conformance with the provisions for decks in Section 51-1.17, "Finishing Bridge Decks," of the Standard Specifications. Edges of slabs shall be edger finished.

Approach slabs shall be cured with pigmented curing compound (1) in conformance with the provisions for curing structures in Section 90-7.01B, "Curing Compound Method," of the Standard Specifications.

MEASUREMENT AND PAYMENT

Structural concrete, approach slab (Type EQ) will be measured and paid for in conformance with the provisions in Section 51-1.22, "Measurement," and Section 51-1.23, "Payment," of the Standard Specifications and these special provisions.

Full compensation for the structure approach drainage system including geocomposite drain, plastic pipe, drainage pads, treated permeable base, filter fabric, and miscellaneous metal shall be considered as included in the contract price paid per cubic yard for Structural Concrete (Approach Slab, Type EQ), and no additional compensation will be allowed therefor.

10-1.52 DRILL AND BOND DOWELS

Drilling and bonding dowels shall conform to the details shown on the plans, the provisions in Section 83-2.02D(1), "General," of the Standard Specifications, and these special provisions.

Dowels shall conform to the provisions for bar reinforcement in "Reinforcement" of these special provisions.

If reinforcement is encountered during drilling before the specified depth is attained, the Engineer shall be notified. Unless the Engineer approves coring through the reinforcement, the hole will be rejected and a new hole, in which reinforcement is not encountered, shall be drilled adjacent to the rejected hole to the depth shown on the plans.

Unless otherwise provided, dowels to be bonded into drilled holes will be paid for as bar reinforcing steel (bridge).

Unless otherwise provided, drilling and bonding dowels will be measured and paid for by the linear foot determined by the number and the required depth of holes as shown on the plans or as ordered by the Engineer.

The contract price paid per linear foot for drill and bond dowel shall include full compensation for furnishing all labor, materials (except reinforcing steel dowels), tools, equipment, and incidentals, and for doing all the work involved in drilling the holes, including coring through reinforcement when approved by the Engineer, and bonding the dowels, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.53 SEALING JOINTS

Joints in concrete bridge decks and joints between concrete structures and concrete approach slabs must be sealed in conformance with the details shown on the plans, the provisions in Section 51, "Concrete Structures," of the Standard Specifications, and these special provisions.

When ordered by the Engineer, a joint seal larger than called for by the Movement Rating shown on the plans must be furnished and installed. Payment to the Contractor for furnishing the larger seal and for saw cutting the increment of additional depth of groove required will be determined as provided in Section 4-1.03, "Changes," of the Standard Specifications.

10-1.54 REINFORCEMENT

Reinforcement shall conform to the provisions in Section 52, "Reinforcement," of the Standard Specifications and these special provisions.

The Department's mechanical splices prequalified list can be found at:

http://www.dot.ca.gov/hq/esc/approved_products_list/

The provisions in "Welding Quality Control" of these special provisions shall not apply to resistance butt welding.

EPOXY-COATED REINFORCEMENT

All top and bottom transverse bar reinforcement in the Stage 1 bridge deck shall be epoxy coated.

MEASUREMENT AND PAYMENT

Measurement and payment for reinforcement in structures shall conform to the provisions in Section 52-1.10, "Measurement," and Section 52-1.11, "Payment," of the Standard Specifications.

10-1.55 ROADSIDE SIGNS

Roadside signs shall be furnished and installed at the locations shown on the plans or where designated by the Engineer and in conformance with the County of El Dorado Design and Improvement Standards Manual, revised March 8, 1994 including Resolutions 199-91 and 58-94 to adopt changes to the Design and Improvement Standards Manual, the MUTCD, the provisions in Section 56-2, "Roadside Signs," of the Standard Specifications and these special provisions.

Sign substrate material shall be 0.080-inch thick sheet aluminum.

Roadside signs shall include Culvert Delineator, per Caltrans Standard Plan A73B.

Sign panel fastening hardware shall be per California Department of Transportation standard plan RS2 except that 5/16" hexhead bolt will be replaced with a 5/16" carriage bolt. The washer directly behind the carriage bolt will be a 7/16" metal washer. The top bolt of each panel will be fastened with a Hawkins M2G-VP56N theft proof nut. The fiber washer will be replaced with a neoprene washer.

Strap and saddle bracket sign fastening hardware shall be per California Department of Transportation standard plan RS4.

Where object markers are required to be mounted on the roadside sign post, they shall be considered to be sign panels for purposes of payment.

Wood posts: Wood posts shall be pressure treated after fabrication in conformance with the provisions in Section 58, "Preservative Treatment of Lumber, Timber and Piling," of the Standard Specifications 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. In addition to the preservatives listed above, Southern yellow pine may also be pressure treated with chromated copper arsenate.

Metal Posts: Posts are to be hot rolled flanged channel galvanized per ASTM A123 and the provisions in Section 75-1.05, "Galvanizing," of the Standard Specifications, finish and intended to be used as supports of signs.

Material: Posts shall be produced from ASTM Designation A36.

Weight: The weight of the sign post before holes are punched shall be 2.00 lbs/ft as specified. The weight tolerance shall be plus or minus 3½%.

Length: The length of the sign post shall be with a tolerance of plus or minus 1.00 inch. One end to be tapered for easy installation.

Punching: Posts shall have a minimum of 6 feet of punched 0.375" diameter holes at 1.00" on center. First holes to be 1.00" from top of post and bottom pointed.

Object markers, sign panels and posts for roadside signs shall be provided by the Contractor and shall conform to these special provisions.

Type N (CA), Type P (CA), and Type R (CA) marker panels mounted on a post with a roadside sign shall be considered to be sign panels and will not be paid for as markers.

SHEET ALUMINUM

Alloy and temper designations for sheet aluminum shall be in accordance with ASTM Designation: B 209.

The Contractor shall furnish the Engineer a Certificate of Compliance in conformance with Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for the sheet aluminum.

Sheet aluminum shall be pretreated in accordance to ASTM Designation: B 449. Surface of the sheet aluminum shall be cleaned, deoxidized, and coated with a light and tightly adherent chromate conversion coating free of powdery residue. The conversion coating shall be Class 2 with a weight between 10 milligrams per square foot and 35 milligrams per square foot, and an average weight of 25 milligrams per square foot. Following the cleaning and coating process, the sheet aluminum shall be protected from exposure to grease, oils, dust, and contaminants.

Sheet aluminum shall be free of buckles, warps, dents, cockles, burrs, and defects resulting from fabrication.

Base plate for standard route marker shall be die cut.

RETROREFLECTIVE SHEETING

The Contractor shall furnish retroreflective sheeting for sign background and legend in conformance with ASTM Designation: D 4956 and "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

Retroreflective sheeting shall be applied to sign panels as recommended by the retroreflective sheeting manufacturer without stretching, tearing, and damage.

Class 1, 3, or 4 adhesive backing shall be used for Type II, III, IV, VII, VIII, and IX retroreflective sheeting. Class 2 adhesive backing may also be used for Type II retroreflective sheeting. The adhesive backing shall be pressure sensitive and fungus resistant.

When the color of the retroreflective sheeting determined from instrumental testing is in dispute, the Engineer's visual test will govern.

PROCESS COLOR AND FILM

The Contractor shall furnish and apply screened process color, non-reflective opaque black film, and protective overlay film of the type, kind, and product that are approved by the manufacturer of the retroreflective sheeting.

The Contractor shall furnish the Engineer a Certificate of Compliance in accordance to Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for the screened process color, non-reflective opaque black film, and protective overlay film.

The surface of the screened process color shall be flat and smooth. When the screened process colors determined from the instrumental testing in accordance to ASTM Designation: D 4956 are in dispute, the Engineer's visual test will govern.

The Contractor shall provide patterns, layouts, and set-ups necessary for the screened process.

The Contractor may use green, red, blue, and brown reverse-screened process colors for background and non-reflective opaque black film or black screened process color for legend. The coefficient of retroreflection for reverse-screened process colors on white retroreflective sheeting shall not be less than 70 percent of the coefficient of retroreflection specified in ASTM Designation: D 4956.

The screened process colors and non-reflective opaque black film shall have the same outdoor weatherability as that of the retroreflective sheeting.

After curing, screened process colors shall withstand removal when tested by applying 3M Company Scotch Brand Cellophane Tape No. 600 or equivalent tape over the color and removing with one quick motion at 90° angle.

SINGLE SHEET ALUMINUM SIGN

Single sheet aluminum signs shall be fabricated and furnished with or without frame. The Contractor shall furnish the sheet aluminum in accordance to "Sheet Aluminum" of these special provisions. Single sheet aluminum signs shall be fabricated from sheet aluminum alloy 6061-T6 or 5052-H38.

Single Sheet aluminum signs shall not have a vertical splice in the sheet aluminum. For signs with depth greater than 48 inches, one horizontal splice will be allowed in the sheet aluminum.

Framing for single sheet aluminum signs shall consist of aluminum channel or rectangular aluminum tubing. The framing shall have a length tolerance of $\pm 1/8$ inch. The face sheet shall be affixed to the frame with rivets of 3/16-inch diameter. Rivets shall be placed within the web of channels and shall not be placed less than 1/2 inch from edges of the sign panels. Rivets shall be made of aluminum alloy 5052 and shall be anodized or treated with conversion coating to prevent corrosion. The exposed portion of rivets on the face of signs shall be the same color as the background or legend where the rivets are placed.

Finished signs shall be flat within a tolerance of $\pm 1/32$ inch per linear foot when measured across the plane of the sign in all directions. The finished signs shall have an overall tolerance within $\pm 1/8$ inch of the detailed dimensions.

Aluminum channels or rectangular aluminum tubings shall be welded together with the inert gas shielded-arc welding process using E4043 aluminum electrode filler wires as shown on the plans. Width of the filler shall be equal to wall thickness of smallest welded channel or tubing.

MEASUREMENT AND PAYMENT

The contract unit prices paid per for Roadside Sign (both 1 and 2 post) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in fabricating, furnishing, and installing the signs, including removable sign panel frame and fastening hardware, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Full compensation for furnishing and installing protective overlay on signs shall be considered as included in the contract prices paid for Roadside Sign (both 1 and 2 post) and no separate payment will be made therefor.

10-1.56 REINFORCED CONCRETE PIPE

Reinforced concrete pipe shall conform to the provisions in Section 65, "Reinforced Concrete Pipe," of the Standard Specifications and these special provisions.

GENERAL

Where embankment will not be placed over the top of the pipe, a relative compaction of not less than 85 percent shall be required below the pipe spring line for pipe installed using Method 1 backfill in trench, as shown on Standard Plan A62D. Where the pipe is to be placed under the traveled way, a relative compaction of not less than 90 percent shall be required unless the minimum distance between the top of the pipe and the pavement surface is the greater of 4 feet or one half of the outside diameter of the pipe.

Except as otherwise designated by classification on the plans or in the specifications, joints for culvert and drainage pipes shall conform to the plans or specifications for standard joints.

If reinforced concrete pipe is installed in conformance with the details shown on Standard Plan A62DA, the fifth paragraph of Section 19-3.04, "Water Control and Foundation Treatment," of the Standard Specifications shall not apply.

Where solid rock or other unyielding material is encountered at the planned elevation of the bottom of the bedding, shown on Standard Plan A62DA, the material below the bottom of the bedding shall be removed to a depth of 1/50 of the height of the embankment over the top of the culvert, but not less than 6 inches nor more than 12 inches. The resulting trench below the bottom of the bedding shall be backfilled with structure backfill material in conformance with the provisions in Section 19-3.06, "Structure Backfill," of the Standard Specifications. The Outer Bedding shall not be compacted prior to placement of the pipe.

MATERIALS

The concrete for reinforced concrete pipe shall contain not less than 470 pounds of cementitious material per cubic yard and have a water-cementitious material ratio that does not exceed 0.40 by weight. Supplementary cementitious material is optional. Reinforcement shall have a minimum cover of 1 inch.

PAYMENT

Payment for the installation of Reinforced Concrete Pipe per linear foot shall include full compensation for furnishing all labor, materials, tools, equipment, trenching, backfill, and incidentals and for doing all the work involved to install the pipe, complete in place, as specified in the Standard Specifications, these special provisions, and as directed by the Engineer.

10-1.57 CORRUGATED METAL PIPE

Corrugated metal culverts shall conform to the provisions in Section 66, "Corrugated Metal Pipe," of the Standard Specifications and these special provisions.

Corrugated steel pipe shall be fabricated from zinc-coated steel sheet.

Except as otherwise designated by classification on the plans or in the specifications, joints for culvert and drainage pipes shall conform to the plans or specifications for standard joints.

Payment for the installation of Corrugated Steel Pipe (both 12" and 18") per linear foot shall include full compensation for furnishing all labor, materials, tools, equipment, trenching, backfill, and incidentals and for doing all the work involved to install the pipe, complete in place, including removal of existing flared end sections, cutting the pipe, preparing the existing pipe, and connecting existing and new pipe segments with banding, as specified in the Standard Specifications, these special provisions, and as directed by the Engineer.

10-1.58 OVERSIDE DRAIN

Hot mix asphalt overside drains shall conform to the details shown on the plans and to the provisions in Section 69, "Overside Drains," of the Standard Specifications and these special provisions.

Hot mix asphalt overside drains shall be measured and paid for in accordance with the provisions of Section 69-1.06, "Payment," of the Standard Specifications.

Flume downdrains shall be fabricated of corrugated steel or corrugated aluminum.

The contract price paid per linear foot for flume downdrain (metal) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing the flume downdrain, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.59 MISCELLANEOUS FACILITIES

Steel flared end sections shall conform to the provisions in Section 70, "Miscellaneous Facilities," of the Standard Specifications and these special provisions.

Steel flared end sections will be measured by units determined by actual count in the field.

10-1.60 DETECTABLE WARNING SURFACE

GENERAL

Summary

This work includes installing detectable warning surface within the pedestrian refuges, as shown on the plans, and as specified in these special provisions.

MATERIALS

Detectable warning surface

Detectable warning surface must be:

1. Yellow color complying with Federal Standard 595B, Color No. 33538
2. Prefabricated
3. Raised truncated domes

Detectable warning surface shall be in conformance with the requirements established by the Department of General Services, Division of State Architect.

The finished surfaces of the detectable warning surface shall be free from blemishes.

The manufacturer must provide a written 5-year warranty for detectable warning surface, guaranteeing replacement when there is defect in the dome shape, color fastness, sound-on-cane acoustic quality, resilience, or attachment. The warranty period will begin upon acceptance of the contract.

CONSTRUCTION

Installation of detectable warning surface must comply with the manufacturer's recommendations.

MEASUREMENT AND PAYMENT

Detectable warning surface will be measured by the square foot for the actual area covered by the detectable warning surface.

The contract price paid per square foot for detectable warning surface includes full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all work involved in installing the detectable warning surface on a concrete pad, including excavation, forming, placing, and finishing the concrete pad, complete in place, as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

10-1.61 ROCK SLOPE PROTECTION

Slope protection shall be placed or constructed in conformance with the provisions in Section 72, "Slope Protection," of the Standard Specifications.

Rock slope protection fabric shall be Class 10 in conformance with the provisions of Section 88, "Geosynthetics," of the Amendments to the Standard Specifications.

The minimum depth of rock slope protection placed at AC overside drain locations, as shown on the plans shall be 12-inches.

10-1.62 MISCELLANEOUS METAL (BRIDGE)

Miscellaneous metal (bridge) shall conform to the provisions for miscellaneous bridge metal in Section 75, "Miscellaneous Metal," of the Standard Specifications and these special provisions.

Miscellaneous metal (bridge) shall consist of the miscellaneous bridge metal items listed in Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications and the following:

A. Pipe Shear Keys

Green Valley Road at Tennessee Creek – Bridge Replacement Project
Contract No. PW 09-30407 / CIP No. 77109
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Pipe shear keys consist of standard steel pipe and associated hardware as shown on the plans and shall be conformance with the provisions in Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications and these special provisions.

The Contractor shall submit working drawings in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications showing the method of filling the pipe shear keys with grout.

Standard steel pipe shall conform to the requirements of ASTM Designation: A 53/A 53M, Type S, Grade B.

10-1.63 FENCE (VINYL)

This work shall consist of furnishing and constructing 3-rail vinyl fence at the locations shown on the plans. Construction of the vinyl fencing shall be completed in accordance with these specifications, the plans, and the manufacturer's installation instructions.

Materials

Supplier of the 3-rail vinyl fence systems which conform to the contract documents include, but are not limited to the following:

Master Halco, Inc. 8400 Rovana Circle Sacramento, CA 95828 (800) 966-1229	Model: Legend or approved similar http://www.masterhalco.com
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Certainteed Corporation P.O. Box 860 Valley Forge, PA 19482 (800) 233-8990	Model: Bufftech, Evernew, or approved similiar http://www.certainteed.com
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Components

All posts, rail, and post caps shall be of high impact, Ultra Violet (U.V.) resistant, right Polyvinyl Chloride (PVC), and shall comply with ASTM D1784, Class 14244B.

All materials are to be white in color.

Posts

Definition: The vertical support members of the fence.

All posts shall be 5" x 5" with an above ground height of no less than 54".

The wall thickness shall be a minimum of 0.15".

The embedment depth shall be a minimum of 30" or as per manufacturer's specification.

All posts shall be set in the concrete footings conforming to the details shown on the plans, and the manufacturer's specifications. Footings shall be crowned on the top to prevent collecting water.

Post spacing shall be 8 feet center-to-center, or as directed by the Engineer.

Rails

Definition: The horizontal members of the fence.

All rails shall be 1 1/2" x 5 1/2" continuous members from post to post.

The wall thickness shall be a minimum of 0.85". All rails are to be ribbed.

Post Caps

Caps are to be molded, one piece, with a cross section sized as required for installation to the top of the posts.

The post caps are to be formed for concealed attachment to the top of posts.

Caps are to be "pyramid" style, and approved by the Engineer.

Fittings and Connections

External screws and brackets are not to be used.
Rails are to be secured to post with tabs, lock rings, or similar internal mechanisms.
Post caps are to snap-fit into place.
Holes in the post to receive railing shall be routed and centered on the post.

Warranty

All applicable manufacturers' warranties shall apply. All information regarding the warranty will be presented to the property owner through the Engineer.

Construction

The Contractor shall submit three (3) copies of catalog cuts or detailed shop drawings to the Engineer for review. Drawings shall clearly show all materials, finishes, and connection and joining methods. No work shall commence prior to the approval by the Engineer.

The Contractor shall furnish and install posts and rails plumb and true to the lines, grades, and limits established by the Engineer and according to the details as shown on the plans and as directed by the Engineer.

The vinyl fence shall be constructed at the location(s) shown on the plans. Except as otherwise specified, installation details and procedures shall conform to the manufacturers' instructions. Assembly of the fence components shall be performed in strict accordance with manufacturers' recommendations for installation. All work shall be free of blemishes or defects which would affect durability, strength or appearance.

Measurement

The quantity of vinyl fence to be paid shall be the number of linear feet of fence measured along the top of the fencing, furnished and placed as shown on the plans. No additional allowances shall be made for end or corner posts.

The contract price paid per linear foot for vinyl fence (3-rail) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing vinyl fence, including replacement, and installation, of existing gates, complete in place, as shown on the plans, as specified in these special provisions and the manufacturer's specifications, and as directed by the Engineer.

10-1.64 FENCE (TYPE BW AND WM)

Type BW and WM fence shall conform to the provisions in Section 80, "Fences," of the Standard Specifications and these special provisions.

Type BW and WM fence material shall be fastened to metal posts. Metal posts shall be painted the same color.

The contract unit price paid per linear foot for Type BW and WM Fence shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in furnishing and installing the fence, complete and in place.

10-1.65 MARKERS AND DELINEATORS

Markers and delineators shall conform to the provisions in Section 82, "Markers and Delineators," of the Standard Specifications and these special provisions.

Markers and delineators on flexible posts shall conform to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. Flexible posts shall be made from a flexible white plastic which shall be resistant to impact, ultraviolet light, ozone, and hydrocarbons. Flexible posts shall resist stiffening with age and shall be free of burns, discoloration, contamination, and other objectionable marks or defects which affect appearance or serviceability.

Retroreflective sheeting for metal target plates shall be the retroreflective sheeting designated for channelizers, markers, and delineators conforming to the requirements in ASTM Designation: D 4956-95 and in conformance with the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions.

10-1.66 METAL BEAM GUARD RAILING

Metal beam guard railing shall be constructed in conformance with the provisions in Section 83-1, "Railings," of the Standard Specifications and these special provisions.

Attention is directed to "Order of Work" of these special provisions.

Line posts shall be wood. Blocks shall be wood.

Metal beam guard railing elements and required backup plates, terminal sections, end caps, and return caps shall conform to the requirements of Type 2 W-Beam as shown in AASHTO Designation: M 180.

ALTERNATIVE IN-LINE TERMINAL SYSTEM

Alternative in-line terminal system shall be furnished and installed as shown on the plans and in conformance with these special provisions.

The allowable alternatives for an in-line terminal system shall consist of the following or a Department approved equal:

- A. **TERMINAL SYSTEM (TYPE SKT)** - Terminal system (Type SKT) shall be an SKT 350 Sequential Kinking Terminal manufactured by Road Systems, Inc., located in Big Spring, Texas, and shall include items detailed for terminal system (Type SKT) shown on the plans. The SKT 350 Sequential Kinking Terminal can be obtained from the distributor, Universal Industrial Sales, P.O. Box 699, Pleasant Grove, UT 84062, Telephone: (801) 785-0505, or from the distributor, Gregory Highway Products, 4100 13th Street, S.W., Canton, OH 44708, Telephone: (330) 477-4800.

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The Certificate of Compliance shall certify that the terminal systems furnished conform to the contract plans and specifications, conform to the prequalified design and material requirements, and were manufactured in conformance with the approved quality control program.

Terminal systems shall be installed in conformance with the manufacturer's installation instructions and these requirements. Each terminal system installed shall be identified by painting the type of terminal system in neat black letters and figures 2 or 2½ inches high on the backside of the rail element between system posts numbers 4 and 5.

For terminal system (Type ET) the steel foundation tubes with soil plates attached shall be, at the Contractor's option, either driven, with or without pilot holes, or placed in drilled holes. Space around the steel foundation tubes 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. The wood terminal posts shall be inserted into the steel foundation tubes by hand and shall not be driven. Before the wood terminal posts are inserted, the inside surfaces of the steel foundation tubes to receive the wood posts shall be coated with a grease which will not melt or run at a temperature of 149° F or less. The edges of the wood terminal posts may be slightly rounded to facilitate insertion of the post into the steel foundation tubes.

Surplus excavated material remaining after the terminal system has been installed shall be disposed of in a uniform manner along the adjacent roadway where designated by the Engineer.

The contract unit price paid for Terminal System (Type SKT) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing alternative in-line terminal system, complete in place, including excavation, backfill, and disposal of surplus material, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

ALTERNATIVE FLARED TERMINAL SYSTEM

Alternative flared terminal system shall be furnished and installed as shown on the plans and in conformance with these special provisions.

The allowable alternatives for a flared terminal system shall consist of the following or a Department approved equal:

- A. **TERMINAL SYSTEM (TYPE FLEAT)** - Terminal system (Type FLEAT) shall be a Flared Energy Absorbing Terminal 350 manufactured by Road Systems, Inc., located in Big Spring, Texas, and shall include items detailed for terminal system (Type FLEAT) shown on the plans. The Flared Energy Absorbing Terminal 350 can be obtained from the distributor, Universal Industrial Sales, P.O. Box 699, Pleasant Grove, UT 84062, telephone (801) 785-0505 or from the distributor, Gregory Highway Products, 4100 13th Street, S.W., Canton, OH 44708, telephone (330) 477-4800.

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The Certificate of Compliance shall certify that the terminal systems furnished conform to the contract plans and specifications, conform to the prequalified design and material requirements, and were manufactured in conformance with the approved quality control program.

Terminal systems shall be installed in conformance with the manufacturer's installation instructions and these requirements. Each terminal system installed shall be identified by painting the type of terminal system in neat black letters and figures 2 inches high on the backside of the rail element between system posts numbers 4 and 5.

For terminal system (Type FLEAT), the soil tubes shall be, at the Contractor's option, driven with or without pilot holes, or placed in drilled holes. Space around the steel foundation tubes 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. Wood posts shall be inserted into the steel foundation tubes by hand. Before the wood terminal posts are inserted, the inside surfaces of the steel foundation tubes to receive the wood posts shall be coated with a grease which will not melt or run at a temperature of 149° F or less. The edges of the wood posts may be slightly rounded to facilitate insertion of the post into the steel foundation tubes.

Surplus excavated material remaining after the terminal system has been installed shall be disposed of in a uniform manner along the adjacent roadway where designated by the Engineer.

The contract unit price paid for Terminal System (Type FLEAT) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing alternative flared terminal system, complete in place, including excavation, backfill and disposal of surplus material, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.67 METAL BRIDGE RAILING

Tubular bicycle railing shall conform to the provisions in Section 83-1, "Railings," of the Standard Specifications.

10-1.68 CONCRETE BARRIER

Concrete barriers shall conform to the provisions in Section 83-2, "Barriers," of the Standard Specifications and these special provisions.

Concrete barriers on bridges or walls shall be cured in conformance with the provisions in Section 90-7.01A, "Water Method," of the Standard Specifications.

Concrete barrier (Type 732A Modified) will be measured and paid for as concrete barrier (Type 732 Modified).

10-1.69 THERMOPLASTIC TRAFFIC STRIPE AND PAVEMENT MARKING

Thermoplastic traffic stripes (traffic lines) and pavement markings shall be applied in conformance with the provisions in Section 84, "Traffic Stripes and Pavement Markings," of the Standard Specifications and these special provisions.

Thermoplastic material shall be free of lead and chromium, and shall conform to the requirements in State Specification PTH-02ALKYD.

Retroreflectivity of the thermoplastic traffic stripes and pavement markings shall conform to the requirements in ASTM Designation: D 6359-99. White thermoplastic traffic stripes and pavement markings shall have a minimum initial retroreflectivity of 250 mcd m⁻² lx⁻¹. Yellow thermoplastic traffic stripes and pavement markings shall have a minimum initial retroreflectivity of 150 mcd m⁻² lx⁻¹.

Where striping joins existing striping, as shown on the plans, the Contractor shall begin and end the transition from the existing striping pattern into or from the new striping pattern a sufficient distance to ensure continuity of the striping pattern.

Thermoplastic traffic stripes shall be applied at the minimum thickness and application rate as specified below. The minimum application rate is based on a solid stripe of 4 inches in width.

Minimum Stripe Thickness (inch)	Minimum Application Rate (lb/ft)
0.079	0.27

Thermoplastic traffic stripes and pavement markings shall be free of runs, bubbles, craters, drag marks, stretch marks, and debris.

At the option of the Contractor, permanent traffic striping and pavement marking tape conforming to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions may be placed instead of the thermoplastic traffic stripes and pavement markings specified herein.

THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE)

Sprayable thermoplastic traffic stripes (traffic lines) shall be applied in conformance with the provisions in Section 84, "Traffic Stripes and Pavement Markings," of the Standard Specifications and these special provisions.

Sprayable thermoplastic material shall be free of lead and chromium, and shall conform to the requirements in State Specification No. PTH-02SPRAY.

Retroreflectivity of the sprayable traffic stripes shall conform to the requirements in ASTM Designation: D 6359-99. White sprayable thermoplastic traffic stripes shall have a minimum initial retroreflectivity of 250 mcd m⁻² lx⁻¹. Yellow sprayable thermoplastic traffic stripes shall have a minimum initial retroreflectivity of 150 mcd m⁻² lx⁻¹.

At the option of the Contractor, permanent traffic striping and pavement marking tape conforming to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions may be placed instead of the sprayable thermoplastic traffic stripes.

Where striping joins existing striping, as shown on the plans, the Contractor shall begin and end the transition from the existing striping pattern into or from the new striping pattern a sufficient distance to ensure continuity of the striping pattern.

Sprayable thermoplastic material shall be applied to the pavement at a minimum thickness of 0.039-inch and a minimum rate of 0.13-lb/ft. The minimum application rate is based on a solid stripe of 4 inches in width.

Sprayable thermoplastic material shall be applied to the pavement at a temperature between 351° F and 401° F, unless a different temperature is recommended by the manufacturer.

Sprayable thermoplastic traffic stripes shall be free of runs, bubbles, craters, drag marks, stretch marks, and debris.

Sprayable thermoplastic traffic stripes will be measured by the linear foot along the line of the traffic stripes, without deductions for gaps in broken traffic stripes. A double traffic stripe, consisting of two 4-inch wide yellow stripes, will be measured as one traffic stripe.

The contract price paid per linear foot for thermoplastic traffic stripe shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in applying sprayable thermoplastic traffic stripes (regardless of the number, widths, and patterns of individual stripes involved in each traffic stripe) including establishing alignment for stripes, and layout work, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.70 PAVEMENT MARKERS

Pavement markers shall be placed in conformance with the provisions in Section 85, "Pavement Markers," of the Standard Specifications and these special provisions.

The Contractor shall furnish the Engineer certificates of compliance for the pavement markers in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

Retroreflective pavement markers shall be marked as abrasion resistant on the body of the markers.

SECTION 10-2. (BLANK)

SECTION 10-3. SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS

10-3.01 DESCRIPTION

Traffic signals and lighting shall conform to the provisions in Section 86, "Signals, Lighting and Electrical Systems," of the Standard Specifications and these special provisions.

The Engineer will provide the signal timing plan to the Contractor.

10-3.02 PLACEMENT OF SIGNAL DEVICES

The Contractor is advised that the locations of traffic signal and pedestrian facilities in corner rounding areas are difficult to describe accurately on the plans. These traffic signal and pedestrian facilities shall be field adjusted to conform to the following rules:

1. Pedestrian heads shall be located within 5 feet of their respective crosswalks and shall never be located behind the associated crosswalk limit line.
2. Pedestrian push buttons shall be located within 5 feet of their respective crosswalks, measured perpendicular to the crosswalk lines.
3. All signal heads shall be located within 2 feet of the center of the lane or lanes controlled.
4. The Contractor shall not place any traffic signal foundations until completion of all adjacent roadway widening and slope construction has been accepted by the Engineer.

10-3.03 EQUIPMENT LIST AND DRAWINGS

Contractor shall order the signal and lighting equipment in sufficient time to allow for the reviews described herein and to receive the equipment before the installation date shown in the Contractor's baseline schedule.

Contractor shall provide to the Engineer a copy of all purchase orders for equipment and materials used in reference to traffic signals within five days of when such orders are placed. Contractor shall provide copies of all correspondence with equipment and materials suppliers concerning availability, delivery dates, anticipated delays, and shipment notices within five days of receipt of each letter. Consideration for recommending time extensions for materials and equipment delivery days will not be made unless these provisions are met.

Unless otherwise permitted in writing by the Engineer, the Contractor shall, within 15 days of submittal of copies of the purchase orders, submit to the Engineer for review a list of equipment and materials which the Contractor proposes to install in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings." The list shall be complete as to name of manufacturer, size and identifying number of each item. The list shall be supplemented by such other data as may be required, including schematic wiring diagrams and scale drawings of cabinets showing location and spacing of shelves, terminal blocks and equipment, including dimensioning. The above data shall be submitted, in duplicate, for review. Where electrical equipment is constructed as detailed on the plans, the submission of detailed drawings and diagrams will not be required.

Once reviewed and accepted by the Engineer the Contractor shall furnish five (5) sets of 11 x 17 sheets of the controller cabinet and electric service cabinet schematic wiring diagrams and one (1) electronic copy on CD. The diagrams shall show the location of the installation and shall list the equipment installed in each controller cabinet. In addition, for each signal installation, the Contractor shall furnish an intersection sketch showing poles, detectors, field wire connection terminals and phasing as shown on the plans. One copy of the controller cabinet diagram and the intersection and phase diagram, as reviewed by the Engineer, shall be combined into one drawing and placed in a heavy duty plastic envelope and attached to the inside of the door of each controller cabinet, so that, when the cabinet door is fully open, the drawing is oriented the same as the intersection.

All diagrams, plans, and drawings shall be prepared using graphic symbols shown in ANSI publication Y32.2, entitled "IEEE Standard and American National Standard Graphic Symbols for Electrical and Electronic Diagrams."

The Contractor shall furnish two maintenance and operation manuals for all new cabinet, controller unit, and auxiliary equipment furnished. The maintenance manual and operation manual may be combined into one manual. The maintenance manual or combined maintenance and operation manual shall be submitted to the Engineer when the Contractor takes delivery of the equipment. The maintenance manual shall include, but need not be limited to, the following items:

- a. Specifications
- b. Design characteristics
- c. General operation theory
- d. Function of all controls
- e. Trouble shooting procedure (diagnostic routine)
- f. Block circuit diagram
- g. Geographical layout of components
- h. Schematic diagrams
- i. List of replaceable component parts with stock numbers and three local suppliers of component parts

10-3.04 COST BREAK-DOWN

Cost break-downs shall conform to the provisions in Section 86-1.03, "Cost Break-Down," of the Standard Specifications and these special provisions.

The Engineer shall be furnished a cost break-down for each contract lump sum item of work described in this Section 10-3.

The cost break-down shall be submitted to the Engineer for approval within ten (10) days of the contract start date stated in the Notice to Proceed. The cost break-down shall be approved, in writing, by the Engineer before any partial payment for the items of electrical work will be made.

10-3.05 FOUNDATIONS

Reinforced cast-in-drilled-hole concrete pile foundations for traffic signal and lighting standards shall conform to the provisions in "Piling" of these special provisions.

Prior to excavating for reinforced cast-in-drilled-hole concrete pile foundations for traffic signal and lighting standards, the Contractor shall review the pole locations in the field with the Engineer. If a subcontractor performs the excavations, a representative of the subcontractor shall participate in the review. The locations of the foundations shall be reviewed for conflicts with existing utilities, consistency with other work performed under the contract, and alignment of the standards and attached equipment with traffic lanes, sidewalks and crosswalks to be constructed under the contract. Signal pole foundations shall not be excavated without prior written approval of the Engineer.

Prior to any work being performed on traffic signal foundations, the subgrade of the adjacent roadway, curbs, gutters and sidewalks and finished excavation or embankment side slopes shall be completed and approved by the Engineer.

The Contractor shall provide reference points to the center of each foundation if stakes for foundations are disturbed during excavation.

The Contractor shall construct the Portland cement concrete foundation for the controller cabinet and service equipment enclosure as shown on the plans (including furnishing and installing anchor bolts).

10-3.06 STANDARDS, STEEL PEDESTALS AND POSTS

Standards, steel pedestals, and posts for traffic signal and lighting standards shall conform to the provisions in Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications and the following requirements.

Steel bolts not designated on the plans as high-strength (HS) or stainless steel shall be for general applications and shall conform to the requirements in ASTM Designation: A 307.

Anchor bolts shall conform to the requirements in ASTM Designation: F 1554, Grade 36. High-strength (HS) anchor bolts shall conform to the requirements in ASTM Designation: F 1554, Grade 105.

Where the plans refer to the side tenon detail at the end of the signal mast arm, the applicable tip tenon detail may be substituted.

The sign mounting hardware shall be installed in accordance with the details and at the locations shown on the plans.

Handhole reinforcement rings for standards, steel pedestals, and posts shall be continuous around the handholes.

Type 1 standards shall be assembled and set with the handhole on the downstream side of the pole in relation to traffic or as shown on the plans.

Standards for traffic signals and lighting shall be supplied only by fabricators who have successfully completed the Caltrans requirements for facilities audits. A current listing of approved fabricators is available at the following website:

http://www.dot.ca.gov/hq/esc/Translab/OSM/smdocuments/Internet_auditlisting.pdf

10-3.07 CONDUIT

Conduit to be installed underground shall be Type 3 unless otherwise specified. Detector termination conduits shall be Type 3.

When Type 3 conduit is placed in a trench (not in pavement or under portland cement concrete sidewalk), after the bedding material is placed and the conduit is installed, the trench shall be backfilled with commercial quality concrete, containing not less than 421 pounds of portland cement per cubic yard, to not less than 4 inches above the conduit before additional backfill material is placed.

Conduit runs shown on the plans to be located behind curbs may be installed in the road, within 3 feet of, and parallel with the face of the curb, by the "Trenching in Pavement Method" in conformance with the provisions in Section

86-2.05C, "Installation," of the Standard Specifications. Pull boxes shall be located behind the curb or at the locations shown on the plans.

After conductors have been installed, the ends of conduits terminating in pull boxes, service equipment enclosures, and controller cabinets shall be sealed with an approved type of sealing compound.

At those locations where conduit is required to be installed under pavement and underground facilities designated as high priority subsurface installation under Govt Code § 4216 et seq. exist, conduit shall be placed by the "Trenching in Pavement Method" in conformance with the provisions in Section 86-2.05C, "Installation," of the Standard Specifications.

At other locations where conduit is required to be installed under pavement and if a delay to vehicles will not exceed 5 minutes, conduit may be installed by the "Trenching in Pavement Method."

Electrical service conduit between the service point and the service pedestal shall be laid to a depth of not less than 30 inches below finished grade and shall conform to Pacific Gas & Electric (PG&E) "Greenbook" standards (current edition) for commercial electrical services.

10-3.08 PULL BOXES

Grout shall not be placed in the bottom of pull boxes.

All pull boxes shall be:

- A. Bedded in 6" of crushed rock.
- B. Located outside of the sidewalk area.
- C. Located behind signal poles whenever possible.

All pull boxes located in drivable areas shall be traffic rated.

10-3.09 CONDUCTORS AND WIRING

Splices shall be insulated by "Method B" only.

All signal conductors shall be multi-conductor cable.

All Signal Conductor Cable shall be continuous, without splices, between signal cabinet and terminal block.

Conductors shall be wrapped around projecting end of conduit in pull boxes. Cables shall be secured to the projecting end of conduit in pull boxes to prevent pulling of cables without removing the securing device.

10-3.10 BONDING AND GROUNDING

Bonding and grounding shall conform to the provisions in Section 86-2.10, "Bonding and Grounding," of the Standard Specifications and these special provisions.

Bonding jumpers in standards with handholes and traffic pull box lid covers shall be attached by a UL listed lug using 3/16-inch diameter or larger brass or bronze bolts and shall run to the conduit or bonding wire in the adjacent pull box. The grounding jumper shall be visible after the standard has been installed and the mortar pad and cap have been placed on the foundation.

Standards without handholes shall have bonding accomplished by jumpers attached to UL listed ground clamps on each anchor bolt.

For slip base standards or slip base inserts, bonding shall be accomplished by jumpers attached to UL listed ground clamps on each anchor bolt, or a UL listed lug attached to the bottom slip base plate with a 3/16-inch diameter or larger brass or bronze bolt.

Equipment bonding and grounding conductors are required in conduits, except when the conduits contain combinations of loop lead-in cable, fiber optic cable, or signal interconnect cable. A No. 8 minimum, bare copper wire shall run continuously in circuits, except for series lighting circuits, where No. 6 bare copper wire shall run continuously. The bonding wire size shall be increased to match the circuit breaker size in conformance with the Code, or shall be as shown on the plans. Conduits to be installed for future conductors, may omit the copper wire.

Bonding of metallic conduits in metal pull boxes shall be by means of bonding bushings and bonding jumpers connected to the bonding wire running in the conduit system.

10-3.11 CONTROLLER

The Contractor shall furnish and install a new, brand-specific Naztec, Inc. Model 980 NEMA TS2, Type 1 Signal Controller with Ethernet. Contractor must quote brand and model indicated; alternative brands will not be accepted.

Pre-installation testing of the controller shall be performed by the Contractor. County representative(s) shall have the option of being present for the pre-installation testing. Contractor shall provide the Engineer with the manufacturer's certification that the pre-installation testing indicates that the controller is functioning within acceptable standards and is ready for installation.

The Contractor shall arrange to have a representative with responsibility and authority to address any controller related issues that may arise present in the field at the time the signal equipment is turned on. The representative shall check all signal heads, phases, and pedestrian heads to insure proper operation, shall activate for proper operation, and shall install initial signal timing.

10-3.12 CONTROLLER CABINET

The controller cabinet shall conform to the provisions in Section 86-3.01 "Controller Assemblies," Section 86-3.04 "Controller Cabinets," and Section 86-3.05 "Cabinet Accessories," of the Standard Specifications and these special provisions.

The controller cabinet shall be a base-mounted NEMA "Standard Type P" TS2, Type 1 cabinet, such as Naztec, Inc. NEMA P-44 Traffic Control Cabinet; McCain, Inc. P44 TS2 NEMA Controller Cabinet; Econolite P44 Cabinet, or equal, conforming to the following specifications:

1. Dimensions: 55"H x 26"D x 44"W
2. Aluminum; White Interior
3. RAL 7004 Grey Exterior – Full Gloss
4. Wired for EVP
5. Compatible with Naztec, Inc. Model 980 TS2 Type 1 controller

Controller cabinet to include:

1. One (1) Cabinet Light
2. One (1) Adjustable Shelf
3. One (1) Document Drawer
4. One (1) sixteen (16) position Load Bay
5. Two (2) sixteen (16) Channel Detector Panels
6. Two (2) Two (2) Channel Detector Racks
7. One (1) TS2 Power Supply
8. One (1) Malfunction Management Unit (TS2 Conflict Monitor)
9. Four (4) Bus Interface Units (Load Bay and Detector BIUs)
10. Sixteen (16) Model 200 Loadswitches, Dual Indicating I/O
11. Sixteen (16) Two (2) Channel Loop Detectors, LCD Display, Oracle
12. One (1) Model 204 Flasher
13. Four (4) Model 430 Flash Transfer Relays

Police panels will not be required.

10-3.13 BATTERY BACKUP SYSTEM AND SERVICE CABINET

GENERAL

The Contractor shall furnish and install a new, brand-specific TESCO Controls, Inc. Model 27-22BBS Service Pedestal and back-to-back Battery Backup System (BBS). Contractor must quote brand and model indicated; alternative brands will not be accepted.

Submittals

Before shipping external cabinets to the jobsite, submit material list including contract number, cabinet serial numbers, and contact information to the Engineer.

Submit a Certificate of Compliance for each external cabinet and batteries to the Engineer under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

Installation

All inverter connections shall be made without the use of tools. This includes: A/C-Input, A/C-Output, Normally-Open, and Normally-Closed programmable contacts.

Contractor shall install the service cabinet on the foundation, and shall make field wiring connections to the terminal blocks in the service cabinet.

Functional Testing

After complete installation, BBS functional test must be performed. Test for 30 minutes of continuous, satisfactory operation with utility power turned off. Perform test in the presence of the Engineer.

Warranty

Batteries must be warranted by the manufacturer to operate within a temperature range of -25 °C to +60 °C for 2 years.

Manufacturers must provide a two (2) year factory-replacement parts warranty on the BBS. Cost of warranty must be included in the bid price. You must provide the Engineer with all warranty documentation before installation. Replacement batteries must be available within 5 business days after receipt of failed batteries at no cost to the State except the cost of shipping the failed batteries. Replacement batteries must be delivered to Department of Transportation Maintenance Shop at 2441 Headington Road, Placerville, Ca.

MATERIALS

Service pedestal must:

1. Be equipped with Transient Voltage Surge Suppression protection
2. Be equipped with a Caltrans #2 lock (for cabinet)
3. Be equipped with a Photoelectric Unit (PEU) sensor for luminaire operation

BBS must:

1. Provide 700 watts of full control run time for four (4) hours, following which the system must provide a minimum of four (4) hours of flash
2. Be equipped with a Caltrans #2 lock (for cabinet)

Batteries must:

1. Be maintenance-free, deep cycle, sealed prismatic, lead-calcium-based, absorbed-glass mat and valve-regulated lead acid (AGM/VRLA) type
2. Be commercially available and stocked locally
3. Have a carrying handle

4. Be marked with date code, maximum recharge data, and recharge cycles
5. Include rubber insulating protective covers for protecting the lugs, posts, and wiring - red for positive terminal and black for negative terminal
6. Be new and fully-charged when furnished
7. Be free from damage or deformities

10-3.14 EMERGENCY VEHICLE DETECTOR SYSTEM

Each traffic signal shall have an emergency vehicle detector system which shall conform to the details shown on the plans and these special provisions.

GENERAL

Each emergency vehicle detector system shall consist of an optical emitter assembly or assemblies located on the appropriate vehicle and an optical detector/discriminator assembly or assemblies located at the traffic signal.

Emitter assemblies are not required for this project except units for testing purposes to demonstrate that the systems perform as specified. Tests shall be conducted in the presence of the Engineer as described below under "System Operation" during the signal test period. The Engineer shall be given a minimum of 2 working days notice prior to performing the tests.

Each system shall permit detection of 2 classes of authorized vehicles. Class I (mass transit) vehicles shall be detected at ranges of up to 1,000 feet from the optical detector. Class II (emergency) vehicles shall be detected at ranges up to 1,800 feet from the optical detector.

Class I signals (those emitted by Class I vehicles) shall be distinguished from Class II signals (those emitted by Class II vehicles) on the basis of the modulation frequency of the light from the respective emitter. The modulation frequency for Class I signal emitters shall be 9.639 Hz \pm 0.110 Hz. The modulation frequency for Class II signal emitters shall be 14.035 Hz \pm 0.250 Hz.

A system shall establish a priority of Class II vehicle signals over Class I vehicle signals and shall conform to the requirements in Section 25352 of the California Vehicle Code.

EMITTER ASSEMBLY

Each emitter assembly, provided for testing purposes, shall consist of an emitter unit, an emitter control unit, and connecting cables.

General

Each emitter assembly, including lamp, shall operate over an ambient temperature range of -34°C to +60°C at both modulation frequencies and operate continuously at the higher frequency for a minimum of 3,000 hours at 25°C ambient before failure of the lamp or other components.

Each emitter unit shall be controlled by a single, maintained-contact switch on the respective emitter control unit. The switch shall be located to be readily accessible to the vehicle driver. The control unit shall contain a pilot light to indicate that the emitter power circuit is energized and shall generate only one modulating code, either that for Class I vehicles or that for Class II vehicles.

Functional

Each emitter unit shall transmit optical energy in one direction only.

The signal from each Class I signal emitter unit shall be detectable at a distance of 1,000 feet when used with a standard optical detection/discriminator assembly and filter to eliminate visible light. Visible light shall be considered eliminated when the output of the emitter unit with the filter is less than an average of 0.0003-candela per energy pulse in the wavelength range of 380 nm to 750 nm when measured at a distance of 10 feet. A Certificate of Compliance, conforming to the requirements in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications shall be submitted to the Engineer with each Class I emitter unit.

The signal from each Class II signal emitter unit shall be detectable at a distance of 1,800 feet when used with a standard optical detection/discriminator assembly.

The standard optical detection/discriminator assembly to be used in making the range tests shall be available from the manufacturer of the system. A certified performance report shall be furnished with each assembly.

Electrical

Each emitter assembly shall provide full light output with input voltages of between 12.5 V (dc) and 17.5 V (dc). An emitter assembly shall not be damaged by input voltages up to 7.5 V (dc) above supply voltage. The emitter assembly shall not generate voltage transients, on the input supply, which exceed the supply voltage by more than 4 volts.

Each emitter assembly shall consume not more than 100 W at 17.5 V (dc) and shall have a power input circuit breaker rated at 10 A to 12 A, 12 V (dc).

The design and circuitry of each emitter shall permit its use on vehicles with either negative or positive ground without disassembling or rewiring of the unit.

Mechanical

Each emitter unit shall be housed in a weatherproof corrosion-resistant housing. The housing shall be provided with facilities to permit mounting on various types of vehicles and shall have provision for aligning the emitter unit properly and for locking the emitter unit into this alignment.

Each emitter control unit shall be provided with hardware to permit the unit to be mounted in or on an emergency vehicle or mass transit vehicle. Where required for certain emergency vehicles, the emitter control unit and exposed controls shall be weatherproof.

OPTICAL DETECTION/DISCRIMINATOR ASSEMBLY

General

Each optical detection/discriminator assembly shall consist of one or more optical detectors, connecting cable and a discriminator module.

Each assembly, when used with standard emitters, shall have a range of at least 1,000 feet for Class I signals and 1,800 feet for Class II signals. Standard emitters for both classes of signals shall be available from the manufacturer of the system. Range measurements shall be taken with all range adjustments on the discriminator module set to "maximum".

Optical Detector

Each optical detector shall be a waterproof unit capable of receiving optical energy from two separately aimable directions. The horizontal angle between the 2 directions shall be variable from 180 degrees to 5 degrees.

The reception angle for each photocell assembly shall be a maximum of 8 degrees in all directions about the aiming axis of the assembly. Measurements of reception angle will be taken at a range of 1,000 feet for a Type I emitter and at a range of 1,800 feet for a Type II emitter.

Internal circuitry shall be solid state and electrical power shall be provided by the associated discriminator module.

Each optical detector shall be contained in a housing, which shall include 2 rotatable photocell assemblies, an electronic assembly and a base. The base shall have an opening to permit mounting on a mast arm or a vertical pipe nipple, or suspension from a span wire. The mounting opening shall have female threads for 3/4 inch conduit. A cable entrance shall be provided which shall have male threads and gasketing to permit a waterproof cable connection. Each detector shall have weight of less than 2.5 pounds and shall present a maximum wind load area of 36 square inches. The housing shall be provided with weep holes to permit drainage of condensed moisture.

Each optical detector shall be installed, wired and aimed as specified by the manufacturer.

Cable

Optical detector cable (EV-C) shall meet the requirements of IPCEA-S-61-402/NEMA WC 5, Section 7.4, 600-V (ac) control cable, 75°C, Type B, and the following:

- A. The cable shall contain 3 conductors, each of which shall be No. 20 (7 x 28) stranded, tinned copper with low-density polyethylene insulation. Minimum average insulation thickness shall be 25 mils. Insulation of individual conductors shall be color coded: 1-yellow, 1-blue, 1-orange.
- B. The shield shall be either tinned copper braid or aluminized polyester film with a nominal 20 percent overlap. Where film is used, a No. 20 (7 x 28) stranded, tinned, bare drain wire shall be placed between the insulated conductors and the shield and in contact with the conductive surface of the shield.
- C. The jacket shall be black polyvinyl chloride with minimum ratings of 600 V (ac) and 80°C and a minimum average thickness of 43 mils. The jacket shall be marked as required by IPCEA/NEMA.
- D. The finished outside diameter of the cable shall not exceed 0.35-inch.
- E. The capacitance, as measured between any conductor and the other conductors and the shield, shall not exceed 48 pf per foot at 1000 Hz.
- F. The cable run between each detector and the controller cabinet shall be continuous without splices or shall be spliced only as directed by the detector manufacturer.

Discriminator Module

Each discriminator module shall be designed to be compatible and usable with a Naztec, Inc. Model 980 NEMA TS2, Type 1 controller and to be mounted in the input file of a NEMA Type P controller cabinet, and shall conform to the requirements of Chapter I of the State of California, Department of Transportation, "Traffic Signal Control Equipment Specifications."

Each discriminator module shall be capable of operating 2 channels, each of which shall provide an independent output for each separate input.

Each discriminator module, when used with its associated detectors, shall perform the following:

- A. Receive Class I signals at a range of up to 1,000 feet and Class II signals at a range of up to 1,800 feet.
- B. Decode the signals, on the basis of frequency, at $9.639 \text{ Hz} \pm 0.119 \text{ Hz}$ for Class I signals and $14.035 \text{ Hz} \pm 0.255 \text{ Hz}$ for Class II signals.
- C. Establish the validity of received signals on the basis of frequency and length of time received. A signal shall be considered valid only when received for more than 0.50-second. No combination of Class I signals shall be recognized as a Class II signal regardless of the number of signals being received, up to a maximum of 10 signals. Once a valid signal has been recognized, the effect shall be held by the module in the event of temporary loss of the signal for a period adjustable from 4.5 seconds to 11 seconds in at least 2 steps at $5 \text{ seconds} \pm 0.5 \text{ second}$ and $10 \text{ seconds} \pm 0.5 \text{ second}$.
- D. Provide an output for each channel that will result in a "low" or grounded condition of the appropriate input of a Model 980 controller. For Class I signals the output shall be a $6.25 \text{ Hz} \pm 0.1 \text{ percent}$, rectangular waveform with a 50 percent duty cycle. For Class II signals the output shall be steady.

Each discriminator module shall receive electric power from the controller cabinet at either 24 V (dc) or 120 V (ac).

Each channel together with the channel's associated detectors shall draw not more than 100 mA at 24 V (dc) or more than 100 mA at 120 V (ac). Electric power, one detector input for each channel and one output for each channel shall terminate at the printed circuit board edge connector pins listed below:

BOARD EDGE CONNECTOR PIN ASSIGNMENT

A	DC ground		
B	+24 V (dc)	P	(NC)
C	(NC)		
D	Detector input, Channel A	R	(NC)
E	+24V (dc) to detectors	S	(NC)
F	Channel A output (C)	T	(NC)
		U	(NC)
H	Channel A output (E)	V	(NC)
J	Detector input, Channel B	W	Channel B Output (C)
K	DC Ground to detectors	X	Channel B Output (E)
L	Chassis ground	Y	(NC)
M	AC-	Z	(NC)
N	AC+		

(C) Collector, Slotted for Keying

(E) Emitter, Slotted for Keying

(NC) Not connected, cannot be used by manufacturer for any purpose.

Two auxiliary inputs for each channel shall enter each module through the front panel connector. Pin assignment for the connector shall be as follows:

- A. Auxiliary detector 1 input, Channel A
- B. Auxiliary detector 2 input, Channel A
- C. Auxiliary detector 1 input, Channel B
- D. Auxiliary detector 2 input, Channel B

Each channel output shall be an optically isolated NPN open collector transistor capable of sinking 50 mA at 30 V (ac) and shall be compatible with the Model 980 controller inputs.

Each discriminator module shall be provided with means of preventing transients received by the detector from affecting the Model 980 controller assembly.

Each discriminator module shall have a single connector board and shall occupy one slot width of the input file. The front panel of each module shall have a handle to facilitate withdrawal and the following controls and indicators for each channel:

- A. Three separate range adjustments each for both Class I and Class II signals.
- B. A 3-position, center-off, momentary contact switch, one position (down) labeled for test operation of Class I signals, and one position (up) labeled for test operation of Class II signals.
- C. A "signal" indication and a "call" indication each for Class I and for Class II signals. The "signal" indication denotes that a signal above the threshold level has been received. A "call" indication denotes that a steady, validly coded signal has been received. These 2 indications may be accomplished with a single indication lamp; "signal" being denoted by a flashing indication and "call" with a steady indication.

In addition, the front panel shall be provided with a single circular, bayonet-captured, multi-pin connector for 2 auxiliary detector inputs for each channel. Connector shall be a mechanical configuration conforming to the requirements in Military Specification MIL-C-26482 with 10-4 insert arrangement, such as Burndy Trim Trio Bantamate Series, consisting of the following:

- A. Wall mounting receptacle, G0B10-4PNE with SM20M-1S6 gold plated pins.
- B. Plug, G6L10-4SNE with SC20M-1S6 gold plated sockets, cable clamp and strain relief that shall provide for a right angle turn within 2-1/2 inches maximum from the front panel surface of the discriminator module.

SYSTEM OPERATION

The Contractor shall demonstrate that the components of each system are compatible and will perform satisfactorily as a system. Satisfactory performance shall be determined using the following test procedure during the functional test period:

- A. Each system to be used for testing shall consist of an optical emitter assembly, an optical detector, an optical detector cable and a discriminator module.
- B. The discriminator modules shall be installed in the proper input file slot of the controller assembly.
- C. Two tests shall be conducted; one using a Class I signal emitter and a distance of 1,000 feet between the emitter and the detector, the other using a Class II signal emitter and a distance of 1,800 feet between the emitter and the detector. Range adjustments on the module shall be set to "Maximum" for each test.
- D. Each test shall be conducted for a period of one hour, during which the emitter shall be operated for 30 cycles, each consisting of a one minute "on" interval and a one minute "off" interval. During the total test period the emitter signal shall cause the proper response from the controller unit during each "on" interval and there shall be no improper operation of either the controller unit or the monitor during each "off" interval.

10-3.15 VEHICLE SIGNAL FACES AND SIGNAL HEADS

Vehicle signal faces and signal heads shall conform to the provisions of Section 86-4, "Traffic Signal Faces and Fittings" of the Standard Specifications and these special provisions.

Type SV-1-T mountings with 5 sections and SV-2-TD mountings shall be bolted to the standard through the upper pipe fitting in the same manner shown for bolting the terminal compartment.

Each signal section shall be provided with a tunnel visor.

All terminal compartments shall be bronze.

All signal housings shall be aluminum and furnished with aluminum back-plates.

10-3.16 LIGHT EMITTING DIODE SIGNAL MODULE

This work includes furnishing and installing Light Emitting Diode (LED) signal module. Comply with Section 86, "Signals, Lighting, and Electrical Systems," of the Standard Specifications.

All traffic signal faces shall be 12-inch, Type 1 LED signal modules in conformance with Section 86-4.02 "Light Emitting Diode Signal Modules of the Standard Specifications and these special provisions..

All LED signal modules shall have the appearance of incandescent fixtures with no individual LEDs visible. All LED signal modules shall be provided with colored lenses that correspond to the appropriate indication. Retrofitting modules subsequent to manufacture is not acceptable to achieve the colored lens requirement. Both Dialight DuraLED modules and GE Lumination (formerly Gelcore) GT1 modules are known to meet the necessary specifications. (GE Lumination RX-11 modules do not comply with current El Dorado County standards.)

CERTIFICATE OF COMPLIANCE

The Contractor shall provide the Engineer a Certificate of Compliance from the manufacturer, in conformance with the provisions of Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The certificate shall certify that the LED signal modules comply with applicable Caltrans specifications.

WARRANTY

The manufacturer shall provide a written warranty against defects in materials and workmanship for LED signal modules for a period of 5 years after installation of LED signal modules. Replacement LED signal modules shall be provided within 5 days after receipt of failed LED signal modules at no cost to the County, except the cost of shipping the failed modules. All warranty documentation shall be given to the Engineer prior to installation. Replacement LED signal modules shall be delivered to El Dorado County Department of Transportation, Maintenance Electrical Shop at 2441 Headington Road, Placerville, CA 95667.

10-3.17 LIGHT EMITTING DIODE PEDESTRIAN FACE MODULES

This work includes furnishing and installing LED pedestrian signal face (PSF) module into standard Type A pedestrian signal housing. Comply with Section 86, "Signals, Lighting, and Electrical Systems," of the Standard Specifications.

All PSF modules shall consist of an "UPRAISED HAND" and "WALKING PERSON" "COUNTDOWN" module. Pedestrian indications shall be full Hand/Man type only. Both Dialight Pedestrian modules and GE Lumination (formerly Gelcore) GT1 modules are known to meet the necessary specifications. (GE Lumination RX-11 modules do not comply with current El Dorado County standards.)

CERTIFICATE OF COMPLIANCE

The Contractor shall provide the Engineer a Certificate of Compliance from the manufacturer, in conformance with the provisions of Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The certificate shall certify that the PSF modules comply with applicable Caltrans specifications.

WARRANTY

The manufacturer shall provide a written warranty against defects in materials and workmanship for the PSF modules for a period of 5 years after installation of the PSF modules. Replacement PSF modules shall be provided within 5 days after receipt of failed PSF modules at no cost to the County, except the cost of shipping the failed modules. All warranty documentation shall be given to the Engineer prior to installation. Replacement PSF modules shall be delivered to El Dorado County Department of Transportation, Maintenance Electrical Shop at 2441 Headington Road, Placerville, CA 95667.

10-3.18 DETECTORS

Loop detector sensor units shall be Contractor furnished.

Loop wire shall be Type 2.

Loop detector lead-in cable shall be Type B.

Slots shall be filled with elastomeric sealant or hot-melt rubberized asphalt sealant except where dense graded asphalt concrete surfacing will not be placed over installed loop conductors, asphaltic emulsion sealant may be used.

Detector handholes shall be precast reinforced concrete with cast iron frame and cover. Handhole covers shall be secured with two 5/16" x 1 1/2" stainless steel screws.

All detector handholes shall be set to grade or raised to grade after placement of final paving.

10-3.19 PEDESTRIAN PUSH BUTTONS

Pedestrian push buttons shall consist of Polara Bulldog Model BDLM2-X or Engineer-approved equal.

Pedestrian push buttons shall be fully ADA compliant and warranted by the manufacturer against "sticking".

All pedestrian push buttons and housings shall be metal.

10-3.20 PHOTOELECTRIC CONTROLS

The photoelectric unit shall be located in the service cabinet.

10-3.21 LUMINAIRES

Ballasts shall be lag or lead regulator type.

All fuse holders for luminaires shall be located inside the pole handhole.

All luminaires shall be furnished with multi-volt type ballasts capable of 120/208/240 or 277 volt operation, shall be furnished without a photoelectric receptacle, and shall be furnished with a plug-in ignitor.

10-3.22 WARRANTIES, GUARANTEES AND INSTRUCTION SHEETS

Unless otherwise specified, all equipment furnished shall be guaranteed to the County by the manufacturers for a period of not less than one (1) year following the date of the recordation of the Notice of Acceptance. If any part (or parts) is found to be defective in materials or workmanship within the one-year period and it is determined the County of El Dorado or by an authorized manufacturer's representative that said part (or parts) cannot be repaired on the site, the manufacturer shall provide a replacement part (or parts) of equal kind and/or type during the repair period and shall be responsible for the removal, handling, repair or replacement, and reinstallation of the part (or parts) of equal kind and/or type during the repair period. Unless otherwise specified, the response time shall in no event exceed 72 hours, including acquisition of parts.

Contractor warrants to County that any and all materials and equipment under this contract will be new unless otherwise specified and that all services will be of good quality, free from faults and defects and in conformance with the contract. Neither final payment nor inspection of the Contractor's services shall constitute an acceptance of services not done in accordance with this contract or relieve the Contractor of liability with respect to any express warranties or responsibilities for faulty material or workmanship. Upon request of the County, Contractor shall immediately remedy any defects in the services, materials and/or equipment and pay for any damage resulting there from. The County shall have the unqualified option to make any needed replacement or repairs itself or to have such replacement or repairs done by the Contractor.

If the Contractor shall fail or refuse to comply with its obligations under this section, the County shall be entitled to all costs and expenses, including attorney's fees, reasonably incurred by reason of the said failure or refusal.

Manufacturers' warranties and guaranties furnished for materials used in the work and instruction sheets and parts lists supplied with materials shall be delivered to the Engineer prior to acceptance of the project.

In addition to the provisions of this section, the Contractor shall be responsible for the continued operation of the components of the traffic signals for a period of 30 days from the recordation of the Notice of Acceptance. The Contractor shall be available to the County at all times during this 30 day period. This work includes, but is not limited to, modifying signal timing as necessary to insure the best possible flow of traffic.

10-3.23 TRAFFIC SYSTEM TURN-ON PROCEDURES

Some of the following procedures may be performed prior to the final turn-on as long as ALL tests are observed and/or accepted by the Engineer. All testing is the responsibility of the Contractor.

Unless otherwise noted, any changes to or modification of this standard turn-on procedure must be approved by the Engineer.

1. Check all signal lighting circuits. (Responsibility of Contractor. Engineer may request to be present at his discretion.)
 - a. Remove all load switches (model 200) and the flasher units (model 204). This must be done to assure their protection and to prevent feedback through the switch causing a possible misleading indication at the signals. The controller unit should be "off" during this test procedure.
 - b. Check each individual signal field circuit by applying 120 volts AC to the field terminal of each indication. This procedure is often called "flashing" the signal heads.
 - c. During "flashing" procedure, verify that all indications that should be "on" are "on" and that all indications that should be "off" remain "off." This verification may be accomplished through the use of small holes cut in the signal face coverings. **Signals must remain covered during this operation unless the Contractor provides manual traffic control (flagging) and that control has been approved by the Engineer.**

2. Check luminaires (street lighting). (Responsibility of the Contractor. Engineer may request to be present at his discretion.)
 - a. Check power pedestal to assure that switch for luminaires is set to "AUTO."
 - b. Cover the photoelectric cell and verify that all luminaires come on. (This test will take a few minutes.)
 - c. Remove cover from photoelectric cell verifying that luminaires go dark.
 - d. Set switch in power pedestal to the "TEST" position and verify that all luminaires come on. (This test will take a few minutes.)
 - e. Set switch back to "AUTO." Signals may not be turned on unless all luminaires are functioning properly.
 - f. When all tests are complete, set switch to "TEST." This condition should remain for at least two weeks to allow "burn in" of luminaires. This period may occur after the signals have been turned on.
3. Check all detector circuits. Although these tests are the responsibility of the Contractor, some do require the cooperation and participation of the Engineer and appropriate coordination should be arranged.
 - a. All detector loops are to be tested for continuity and resistance to ground. Resistance to ground shall exceed 100 meg ohms. Engineer, at his discretion, will be present during these tests and observe results.
 - b. The functionality of all vehicle detection shall be demonstrated by use of a Contractor-provided test vehicle while cabinet indications and responses are observed by the Engineer.
 - c. The Contractor shall demonstrate the functionality of the pedestrian push button circuits by activating the pedestrian push buttons while cabinet indications and responses are observed by the Engineer.
4. Signs and pavement markings.
 - a. There must be a minimum of three (3) days of dry pavement prior to the application of any pavement markings.
 - b. Application of pavement markings shall be coordinated so that the work is completed on Monday through Wednesday and at least five (5) business days prior to any County-observed holiday.
 - c. All pavement markings and traffic control signs shall be in place the day prior to signal turn-on to accommodate coordination. Any signs associated with the signals shall be covered by the Contractor and remain covered until final turn-on.
 - d. Between the time the striping is complete and the signals are placed into operation, the Engineer may require the Contractor to install interim signing and/or safety measures to meet the safety needs of the community.
 - e. Engineer shall check ALL pavement markings to assure that they are in place and comply with the plans prior to notifying involved or interested parties and/or agencies of planned turn-on schedule. (Example of parties to be notified, as needed: DOT Traffic Unit, CHP, Sheriff, Contractor, etc.)
 - f. On the day of the turn-on, the Engineer will have the responsibility of determining the exact time of the turn-on based on safety and operational considerations.
5. Final turn-on procedure. (Responsibility of the Contractor except as noted.)

The signals MAY NOT be turned on unless all signs and markings are in place.

Final signal turn-on shall not occur during rainy or foggy weather, and shall not occur on Monday, Friday, or within three (3) days prior to any holiday, unless otherwise specifically approved by the Engineer.

- a. Verify that the Conflict Monitor has been tested and that the correct and properly tested program board is installed. Verify that the "permissives" programmed into the controller (viewed at controller location 1>3>4) are consistent with the jumpers on the Conflict Monitor program board.
- b. Check to verify that the timing plan provided by the Engineer has been properly entered into the Controller.
- c. Remove covers from signal heads. (Responsibility of Contractor.)
- d. Place signal into flashing operation.
- e. Remove all covers from signs. Also remove any interim signing or safety measures that may have been put in place. (This is the responsibility of the Contractor.)
- f. Remove all existing STOP signs. (This is the responsibility of the Contractor.)
- g. Place signals into automatic operation.

- h. Remove manual traffic control.
- i. Observe operations and make any adjustments to operations that are identified as necessary.

PAYMENT

Full compensation for furnishing, installing, testing, turn-on, and operating all signal and lighting components in accordance with the plans and the Standard Specifications, and as specified in this special provisions shall be included in the lump sum price paid for "Signal and Lighting" and no additional compensation will be allowed therefor.

Full compensation for installing the signal foundations, the controller cabinet and service equipment enclosure foundation in accordance with the plans and the Standard Specifications and as specified in this special provision shall be included in the lump sum price paid for "Signal and Lighting" and no additional compensation will be allowed therefor.

Full compensation for providing representatives with the necessary expertise to address problems during the testing, turn-on, and the 30-day period after the recordation of the Notice of Acceptance shall be included in the lump sum price paid for "Signal and Lighting" and no additional compensation will be allowed therefor.

Full compensation for furnishing and installing signs mounted on signal standards and poles shall be considered as included in the lump sum price paid for Signal and Lighting and no separate payment will be made therefor.

Full compensation for furnishing equipment lists and drawings, maintenance and operation manuals, manufacturers' certifications, and warranties shall be considered as included in the lump sum price paid for Signal and Lighting and no separate payment will be made therefor.

SECTION 11 (BLANK)

SECTION 12 (BLANK)

SECTION 13 (BLANK)

SECTION 14. FEDERAL REQUIREMENTS FOR FEDERAL-AID CONSTRUCTION PROJECTS

GENERAL.—The work herein proposed will be financed in whole or in part with Federal funds, and therefore all of the statutes, rules and regulations promulgated by the Federal Government and applicable to work financed in whole or in part with Federal funds will apply to such work. The "Required Contract Provisions, Federal-Aid Construction Contracts, "Form FHWA 1273, are included in this Section 14. Whenever in said required contract provisions references are made to "SHA contracting officer," "SHA resident engineer," or "authorized representative of the SHA," such references shall be construed to mean "Engineer" as defined in Section 1-1.18 of the Standard Specifications.

PERFORMANCE OF PREVIOUS CONTRACT.—In addition to the provisions in Section II, "Nondiscrimination," and Section VII, "Subletting or Assigning the Contract," of the required contract provisions, the Contractor shall comply with the following:

The bidder shall execute the CERTIFICATION WITH REGARD TO THE PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE AND THE FILING OF REQUIRED REPORTS located in the proposal. No request for subletting or assigning any portion of the contract in excess of \$10,000 will be considered under the provisions of Section VII of the required contract provisions unless such request is accompanied by the CERTIFICATION referred to above, executed by the proposed subcontractor.

NON-COLLUSION PROVISION.—The provisions in this section are applicable to all contracts except contracts for Federal Aid Secondary projects.

Title 23, United States Code, Section 112, requires as a condition precedent to approval by the Federal Highway Administrator of the contract for this work that each bidder file a sworn statement executed by, or on behalf of, the person, firm, association, or corporation to whom such contract is to be awarded, certifying that such person, firm, association, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the submitted bid. A form to make the non-collusion affidavit statement required by Section 112 as a certification under penalty of perjury rather than as a sworn statement as permitted by 28, USC, Sec. 1746, is included in the proposal.

PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES IN SUBCONTRACTING.—Part 26, Title 49, Code of Federal Regulations applies to this Federal-aid project. Pertinent sections of said Code are incorporated in part or in its entirety within other sections of these special provisions.

Schedule B—Information for Determining Joint Venture Eligibility

(This form need not be filled in if all joint venture firms are DBE owned.)

1. Name of joint venture _____

2. Address of joint venture _____

3. Phone number of joint venture _____

4. Identify the firms which comprise the joint venture. (The DBE partner must complete Schedule A.) _____

a. Describe the role of the DBE firm in the joint venture. _____

b. Describe very briefly the experience and business qualifications of each non-DBE joint venturer: _____

5. Nature of the joint venture's business _____

6. Provide a copy of the joint venture agreement.

7. What is the claimed percentage of DBE ownership? _____

8. Ownership of joint venture: (This need not be filled in if described in the joint venture agreement, provided by question 6.).

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- a. Profit and loss sharing.
- b. Capital contributions, including equipment.
- c. Other applicable ownership interests.

9. Control of and participation in this contract. Identify by name, race, sex, and "firm" those individuals (and their titles) who are responsible for day-to-day management and policy decision making, including, but not limited to, those with prime responsibility for:

a. Financial decisions _____

b. Management decisions, such as:

1. Estimating _____

2. Marketing and sales _____

3. Hiring and firing of management personnel _____

4. Purchasing of major items or supplies _____

c. Supervision of field operations _____

Note.—If, after filing this Schedule B and before the completion of the joint venture's work on the contract covered by this regulation, there is any significant change in the information submitted, the joint venture must inform the grantee, either directly or through the prime contractor if the joint venture is a subcontractor.

Affidavit

"The undersigned swear that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operation of our joint venture and the intended participation by each joint venturer in the undertaking. Further, the undersigned covenant and agree to provide to grantee current, complete and accurate information regarding actual joint venture work and the payment therefor and any proposed changes in any of the joint venture arrangements and to permit the audit and examination of the books, records and files of the joint venture, or those of each joint venturer relevant to the joint venture, by authorized representatives of the grantee or the Federal funding agency. Any material misrepresentation will be grounds for terminating any contract which may be awarded and for initiating action under Federal or State laws concerning false statements."

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..... Name of Firm Name of Firm
..... Signature Signature
..... Name Name
..... Title Title
..... Date Date

Date _____

State of _____

County of _____

On this ____ day of _____, 19 __, before me appeared (Name) _____, to me personally known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was properly authorized by (Name of firm) _____ to execute the affidavit and did so as his or her free act and deed.

Notary Public _____

Commission expires _____

[Seal]

Date _____

State of _____

County of _____

On this ____ day of _____, 19 __, before me appeared (Name) _____ to me personally known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was properly authorized by (Name of firm) _____ to execute the affidavit and did so as his or her free act and deed.

Notary Public _____

Commission expires _____

[Seal]

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

(Exclusive of Appalachian Contracts)

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ATTACHMENTS

A. Employment Preference for Appalachian Contracts (included in Appalachian contracts only)

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

- Section I, paragraph 2;
- Section IV, paragraphs 1, 2, 3, 4, and 7;
- Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. Selection of Labor: During the performance of this contract, the contractor shall not:

- a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or
- b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively

administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to

refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. **Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 26, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. **Records and Reports:** The contractor shall keep such

records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

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c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of \$10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3)] issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c) the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit

as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under an approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT):

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding:

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof of the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less than the applicable wage rate and fringe benefits or cash equivalent for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available

may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than \$1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding re-

garding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

"Whoever being an officer, agent, or employee of the United States, or any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more than \$10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub. L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub. L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized

for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion—Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

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d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not

required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract,

grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall

be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

FEDERAL-AID FEMALE AND MINORITY GOALS

In accordance with Section II, "Nondiscrimination," of "Required Contract Provisions Federal-aid Construction Contracts" the following are the goals for female utilization:

Goal for Women
(applies nationwide).....(percent) 6.9

The following are goals for minority utilization:

CALIFORNIA ECONOMIC AREA

	Goal (Percent)
174 Redding, CA:	
Non-SMSA Counties	6.8
CA Lassen; CA Modoc;	
CA Plumas; CA Shasta;	
CA Siskiyou; CA Tehama.	
175 Eureka, CA:	
Non-SMSA Counties	6.6
CA Del Norte; CA Humboldt;	
CA Trinity.	
176 San Francisco-Oakland-San Jose, CA:	
SMSA Counties:	
7120 Salinas-Seaside-	
Monterey, CA.....	28.9
CA Monterey.	
7360 San Francisco-Oakland, CA.....	25.6
CA Alameda; CA Contra Costa;	
CA Marin; CA San Francisco;	
CA San Mateo.	
7400 San Jose, CA.....	19.6
CA Santa Clara.	
7485 Santa Cruz, CA.....	14.9
CA Santa Cruz.	
7500 Santa Rosa, CA.....	9.1
CA Sonoma.	
8720 Vallejo-Fairfield- Napa, CA	17.1
CA Napa; CA Solano	
Non-SMSA Counties.....	23.2
CA Lake; CA Mendocino;	
CA San Benito.	

177 Sacramento, CA:	
SMSA Counties:	
6920 Sacramento, CA.....	16.1
CA Placer; CA Sacramento;	
CA Yolo.	
Non-SMSA Counties	14.3
CA Butte; CA Colusa;	
CA El Dorado; CA Glenn;	
CA Nevada; CA Sierra;	
CA Sutter; CA Yuba.	
178 Stockton-Modesto, CA:	
SMSA Counties:	
5170 Modesto, CA	12.3
CA Stanislaus.	
8120 Stockton, CA	24.3
CA San Joaquin.	
Non-SMSA Counties	19.8
CA Alpine; CA Amador;	
CA Calaveras; CA Mariposa;	
CA Merced; CA Tuolumne.	
179 Fresno-Bakersfield, CA:	
SMSA Counties:	
0680 Bakersfield, CA.....	19.1
CA Kern.	
2840 Fresno, CA	26.1
CA Fresno.	
Non-SMSA Counties	23.6
CA Kings; CA Madera;	
CA Tulare.	
180 Los Angeles, CA:	
SMSA Counties:	
0360 Anaheim-Santa Ana-Garden	
Grove, CA.....	11.9
CA Orange.	
4480 Los Angeles-Long	
Beach, CA	28.3
CA Los Angeles.	
6000 Oxnard-Simi Valley-	
Ventura, CA	21.5
CA Ventura.	

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6780 Riverside-San Bernardino- Ontario, CA.	19.0
CA Riverside; CA San Bernardino.	
7480 Santa Barbara-Santa Maria- Lompoc, CA	19.7
CA Santa Barbara.	
Non-SMSA Counties.....	24.6
CA Inyo; CA Mono; CA San Luis Obispo.	

181 San Diego, CA:

SMSA Counties	
7320 San Diego, CA.....	16.9
CA San Diego.	
Non-SMSA Counties.....	18.2
CA Imperial.	

In addition to the reporting requirements set forth elsewhere in this contract the Contractor and subcontractors holding subcontracts, not including material suppliers, of \$10,000 or more, shall submit for every month of July during which work is performed, employment data as contained under Form FHWA PR-1391 (Appendix C to 23 CFR, Part 230), and in accordance with the instructions included thereon.

Form 1273 — Revised 3-95
08-07-95

FEDERAL REQUIREMENT TRAINING SPECIAL PROVISIONS

FEDERAL REQUIREMENT TRAINING

SPECIAL PROVISION. -- As part of the Contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The Contractor shall provide on-the-job training to develop full journeymen in the types of trades or job classification involved.

The goal for the number of trainees or apprentices to be trained under the requirements of this special provision will be four (4).

In the event the Contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees or apprentices are to be trained by the subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The Contractor shall also ensure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of trainees or apprentices in each occupation shall be in their first year of apprenticeship or training.

The number of trainees or apprentices shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing work, the Contractor shall submit to the Department for approval the number of trainees or apprentices to be trained in each selected classification and training program to be used. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. The Contractor will be credited for each trainee or apprentice employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees or apprentices as provided hereinafter.

Training and upgrading of minorities and women toward journeymen status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority and women trainees or apprentices (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees or apprentices) to the extent such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee or apprentice in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by both the Department and the Federal Highway Administration. The Department and the Federal Highway Administration will approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee or apprentice for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with the State of California, Department of Industrial Relations, Division of Apprenticeship Standards recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office.

Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training. Except as otherwise noted below, the Contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein.

This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the Contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the Contractor where he does one or more of the following and the trainees or apprentices are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or apprentice or pays the trainee's or apprentice's wages during the offsite training period.

No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee or apprentice as a journeyman, is caused by the

Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee or apprentice will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he

has completed his training program. It is not required that all trainees or apprentices be on board for the entire length of the contract. A Contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees or apprentices specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Only trainees or apprentices registered in a program approved by the State of California's State Administrator of Apprenticeship may be employed on the project and said trainees or apprentices shall be paid the standard wage specified under the regulations of the craft or trade at which they are employed.

The Contractor shall furnish the trainee or apprentice a copy of the program he will follow in providing the training. The Contractor shall provide each trainee or apprentice with a certification showing the type and length of training satisfactorily completed.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

APPENDIX A
to the contract documents for
Green Valley Road at Tennessee Creek – Bridge Replacement Project
Contract No. PW 09-30407 / CIP No. 77109

AMENDMENTS TO MAY 2006 STANDARD SPECIFICATIONS

**AMENDMENTS TO MAY 2006 STANDARD SPECIFICATIONS
UPDATED JUNE 6, 2008
& SECTION 88 UPDATED JULY 30, 2010**

SECTION 0: GLOBAL REVISIONS

Issue Date: July 31, 2007

Global revisions are changes to contract documents not specific to a section of the Standard Specifications.

- In each contract document at each occurrence:
 1. Except where existing asphalt concrete is described, replace "asphalt concrete" with "hot mix asphalt"
 2. Except where existing AC is described, replace "AC" with "HMA" where AC means asphalt concrete

SECTION 1: DEFINITIONS AND TERMS

Issue Date: January 18, 2008

Section 1-1.01, "General," of the Standard Specifications is amended by adding the following:

- The Department is gradually changing the style and language of the specifications. The new style and language includes:

1. Use of:
 - 1.1. Imperative mood
 - 1.2. Introductory modifiers
 - 1.3. Conditional clauses

2. Elimination of:
 - 2.1. Language variations
 - 2.2. Definitions for industry-standard terms
 - 2.3. Redundant specifications
 - 2.4. Needless cross-references

- The use of this new style does not change the meaning of a specification not yet using this style.
- The specifications are written to the Bidder before award and the Contractor after. Before award, interpret sentences written in the imperative mood as starting with "The Bidder must" and interpret "you" as "the Bidder" and "your" as "the Bidder's." After award, interpret sentences written in the imperative mood as starting with "The Contractor must" and interpret "you" as "the Contractor" and "your" as "the Contractor's."
 - Unless an object or activity is specified to be less than the total, the quantity or amount is all of the object or activity.
 - All items in a list apply unless the items are specified as choices.
 - Interpret terms as defined in the Contract documents. A term not defined in the Contract documents has the meaning defined in Means Illustrated Construction Dictionary, Condensed Version, Second Edition.

The 1st table in Section 1-1.02, "Abbreviations," of the Standard Specifications is amended by adding:

SSPC	The Society for Protective Coatings
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Section 1, "Definitions and Terms," of the Standard Specifications is amended by adding the following sections:

1-1.082 BUSINESS DAY

- Day on the calendar except Saturday or holiday.

1-1.084 CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

• The California Manual on Uniform Traffic Control Devices for Streets and Highways (California MUTCD) is issued by the Department of Transportation and is the Federal Highway Administration's MUTCD 2003 Edition, as amended for use in California.

1-1.125 DEDUCTION

• Amount of money permanently taken from progress payment and final payment. Deductions are cumulative and are not retentions under Pub Cont Code § 7107.

1-1.205 FEDERAL-AID CONTRACT

• Contract that has a Federal-aid project number on the cover of the Notice to Contractors and Special Provisions.

1-1.245 HOLIDAY

1. Every Sunday
2. January 1st, New Year's Day
3. 3rd Monday in January, Birthday of Martin Luther King, Jr.
4. February 12th, Lincoln's Birthday
5. 3rd Monday in February, Washington's Birthday
6. March 31st, Cesar Chavez Day
7. Last Monday in May, Memorial Day
8. July 4th, Independence Day
9. 1st Monday in September, Labor Day
10. 2nd Monday in October, Columbus Day
11. November 11th, Veterans Day
12. 4th Thursday in November, Thanksgiving Day
13. Day after Thanksgiving Day
14. December 25th, Christmas Day

• If January 1st, February 12th, March 31st, July 4th, November 11th, or December 25th falls on a Sunday, the Monday following is a holiday. If November 11th falls on a Saturday, the preceding Friday is a holiday. Interpret "legal holiday" as "holiday."

1-1.475 WITHHOLD

• Money temporarily or permanently taken from progress payment. Withholds are cumulative and are not retentions under Pub Cont Code § 7107.

Section 1-1.255, "Legal Holidays," of the Standard Specifications is deleted.

Section 1-1.265, "Manual on Uniform Traffic Control Devices," of the Standard Specifications is deleted.

Section 1-1.266, "Manual on Uniform Traffic Control Devices California Supplement," of the Standard Specifications is deleted.

Section 1-1.39 "State," of the Standard Specifications is amended to read:

1-1.39 STATE

• The State of California, including its agencies, departments, or divisions, whose conduct or action is related to the work.

SECTION 3: AWARD AND EXECUTION OF CONTRACT

Issue Date: August 17, 2007

Section 3-1.025, "Insurance Policies," of the Standard Specifications is amended to read:

3-1.025 INSURANCE POLICIES

- The successful bidder shall submit:
 1. Copy of its commercial general liability policy and its excess policy or binder until such time as a policy is available, including the declarations page, applicable endorsements, riders, and other modifications in effect at the time of contract execution. Standard ISO form No. CG 0001 or similar exclusions are allowed if not inconsistent with Section 7-1.12, "Indemnification and Insurance." Allowance of additional exclusions is at the discretion of the Department.
 2. Certificate of insurance showing all other required coverages. Certificates of insurance, as evidence of required insurance for the auto liability and any other required policy, shall set forth deductible amounts applicable to each policy and all exclusions that are added by endorsement to each policy. The evidence of insurance shall provide that no cancellation, lapse, or reduction of coverage will occur without 10 days prior written notice to the Department.
 3. A declaration under the penalty of perjury by a certified public accountant certifying the accountant has applied Generally Accepted Accounting Principles (GAAP) guidelines confirming the successful bidder has sufficient funds and resources to cover any self-insured retentions if the self-insured retention is \$50,000 or higher.

- If the successful bidder uses any form of self-insurance for workers compensation in lieu of an insurance policy, it shall submit a certificate of consent to self-insure in accordance with the provisions of Section 3700 of the Labor Code.

Section 3-1.03, "Execution of Contract," of the Standard Specifications is amended to read:

3-1.03 EXECUTION OF CONTRACT

- The contract shall be signed by the successful bidder and returned, together with the contract bonds and the documents identified in Section 3-1.025, "Insurance Policies," within 10 business days of receiving the contract for execution.

Section 3-1.04, "Failure to Execute Contract," of the Standard Specifications is amended to read:

3-1.04 FAILURE TO EXECUTE CONTRACT

- Failure of the lowest responsible bidder, the second lowest responsible bidder, or the third lowest responsible bidder to execute the contract as required in Section 3-1.03, "Execution of Contract," within 10 business days of receiving the contract for execution shall be just cause for the forfeiture of the proposal guaranty. The successful bidder may file with the Department a written notice, signed by the bidder or the bidder's authorized representative, specifying that the bidder will refuse to execute the contract if it is presented. The filing of this notice shall have the same force and effect as the failure of the bidder to execute the contract and furnish acceptable bonds within the time specified.

Section 3-1.05, "Return of Proposal Guaranties," of the Standard Specifications is amended to read:

3-1.05 RETURN OF PROPOSAL GUARANTIES

- The Department keeps the proposal guaranties of the 1st, 2nd and 3rd lowest responsible bidders until the contract has been executed. The other bidders' guaranties, other than bidders' bonds, are returned upon determination of the 1st, 2nd, and 3rd apparent lowest bidders, and their bidders' bonds are of no further effect.

SECTION 4: SCOPE OF WORK

Issue Date: August 17, 2007

Section 4-1.01, "Intent of Plans and Specifications," of the Standard Specifications is amended by adding the following:

- Nothing in the specifications voids the Contractor's public safety responsibilities.

SECTION 5: CONTROL OF WORK

Issue Date: February 1, 2008

Section 5, "Control of Work," of the Standard Specifications is amended by adding the following sections:

5-1.005 GENERAL

- Failure to comply with any specification part is a breach of the contract and a waiver of your right to time or payment adjustment.
 - After contract approval, submit documents and direct questions to the Engineer. Orders, approvals, and requests to the Contractor are by the Engineer.
 - The Engineer furnishes the following in writing:
 1. Approvals
 2. Notifications
 3. Orders
 - The Contractor must furnish the following in writing:
 1. Assignments
 2. Notifications
 3. Proposals
 4. Requests, sequentially numbered
 5. Subcontracts
 6. Test results
 - The Department rejects a form if it has any error or any omission.
 - Convert foreign language documents to English.
 - Use contract administration forms available at the Department's Web site.
 - If the last day for submitting a document falls on a Saturday or holiday, it may be submitted on the next business day with the same effect as if it had been submitted on the day specified.

5-1.015 RECORD RETENTION, INSPECTION, COPYING, AND AUDITING

- Retain project records and make them available for inspection, copying, and auditing by State representatives from bid preparation through:
 1. Final payment
 2. Resolution of claims, if any
- For at least 3 years after the later of these, retain and make available for inspection, copying, and auditing cost records by State representatives including:
 1. Records pertaining to bid preparation
 2. Overhead
 3. Payroll records and certified payroll
 4. Payments to suppliers and subcontractors
 5. Cost accounting records
 6. Records of subcontractors and suppliers
- Maintain the records in an organized way in the original format, electronic and hard copy, conducive to professional review and audit.
 - Before contract acceptance, the State representative notifies the Contractor, subcontractor, or supplier 5 days before inspection, copying, or auditing.
 - If an audit is to start more than 30 days after contract acceptance, the State representative notifies the Contractor, subcontractor, or supplier when the audit is to start.

Section 5-1.01, "Authority of Engineer," of the Standard Specifications is amended by adding:

- Failure to enforce a contract provision does not waive enforcement of any contract provision.

Section 5-1.04, "Coordination and Interpretation of Plans, Standard Specifications, and Special Provisions," of the Standard Specifications is amended to read:

5-1.04 CONTRACT COMPONENTS

- A component in one contract part applies as if appearing in each. The parts are complementary and describe and provide for a complete work.
- If a discrepancy exists:

1. The governing ranking of contract parts in descending order is:
 - 1.1. Special provisions
 - 1.2. Project plans
 - 1.3. Revised Standard Plans
 - 1.4. Standard Plans
 - 1.5. Amendments to the Standard Specifications
 - 1.6. Standard Specifications
 - 1.7. Project information
 2. Written numbers and notes on a drawing govern over graphics
 3. A detail drawing governs over a general drawing
 4. A detail specification governs over a general specification
 5. A specification in a section governs over a specification referenced by that section
- If a discrepancy is found or confusion arises, request correction or clarification.

Section 5-1.07, "Lines and Grades," of the Standard Specifications is replaced with the following:

5-1.07 LINES AND GRADES

- The Engineer places stakes and marks under Chapter 12, "Construction Surveys," of the Department's Surveys Manual.

- Submit your request for Department-furnished stakes:

1. On a Request for Construction Stakes form. Ensure:
 - 1.1. Requested staking area is ready for stakes
 - 1.2. You use the stakes in a reasonable time
2. A reasonable time before starting an activity using the stakes

- Establish priorities for stakes and note priorities on the request.
- Preserve stakes and marks placed by the Engineer. If the stakes or marks are destroyed, the Engineer replaces them at the Engineer's earliest convenience and deducts the cost.

Section 5-1.116, "Differing Site Conditions," is amended to read:

5-1.116 DIFFERING SITE CONDITIONS (23 CFR 635.109)

5-1.116A Contractor's Notification

- Promptly notify the Engineer if you find either of the following:
 1. Physical conditions differing materially from either of the following:
 - 1.1. Contract documents
 - 1.2. Job site examination
 2. Physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract
- Include details explaining the information you relied on and the material differences you discovered.

- If you fail to notify the Engineer promptly, you waive the differing site condition claim for the period between your discovery of the differing site condition and your notification to the Engineer.
- If you disturb the site after discovery and before the Engineer's investigation, you waive the differing site condition claim.

5-1.116B Engineer's Investigation and Decision

- Upon your notification, the Engineer investigates job site conditions and:
 1. Notifies you whether to resume affected work
 2. Decides whether the condition differs materially and is cause for an adjustment of time, payment, or both

5-1.116C Protests

- You may protest the Engineer's decision by:
 1. Submitting an Initial Notice of Potential Claim within 5 business days after receipt of the Engineer's notification
 2. Complying with claim procedures
- The Initial Notice of Potential Claim must detail the differences in your position from the Engineer's determination and support your position with additional information, including additional geotechnical data. Attach to the Initial Notice of Potential Claim a certification stating that you complied with Section 2-1.03, "Examination of Plans, Specifications, Contract, and Site of Work."
 - Promptly submit supplementary information when obtained.

SECTION 6: CONTROL OF MATERIALS

Issue Date: August 17, 2007

Section 6-1.05, "Trade Names and Alternatives," of the Standard Specifications is amended to read:

6-1.05 Specific Brand or Trade Name and Substitution

- A reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. You may use a product that is equal to or better than the specified brand or trade name if approved.
- Submit a substitution request within a time period that:
 1. Follows Contract award
 2. Allows 30 days for review
 3. Causes no delay
- Include substantiating data with the substitution request that proves the substitution:
 1. Is of equal or better quality and suitability
 2. Causes no delay in product delivery and installation

Section 6, "Control of Materials," of the Standard Specifications is amended by adding the following sections:

6-1.085 BUY AMERICA (23 CFR 635.410)

- For a Federal-aid contract, furnish steel and iron materials to be incorporated into the work that are produced in the United States except:
 1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials [60 Fed Reg 15478 (03/24/1995)]
 2. If the total combined cost of the materials does not exceed the greater of 0.1 percent of the total bid or \$2,500, material produced outside the United States may be used
- Production includes:

1. Processing steel and iron materials, including smelting or other processes that alter the physical form or shape (such as rolling, extruding, machining, bending, grinding, and drilling) or chemical composition
2. Coating application, including epoxy coating, galvanizing, and painting, that protects or enhances the value of steel and iron materials

- For steel and iron materials to be incorporated into the work, submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications that certifies all production processes occurred in the United States except for the above exceptions.

6-1.087 BUY AMERICA (PUB RES CODE § 42703(d))

- Furnish crumb rubber to be incorporated into the work that is produced in the United States and is derived from waste tires taken from vehicles owned and operated in the United States.
- For crumb rubber to be incorporated into the work, submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications that certifies only crumb rubber manufactured in the United States and derived from waste tires taken from vehicles owned and operated in the United States is used.

The 7th and 8th paragraph of Section 6-2.01, "General," of the Standard Specifications are amended to read:

- Upon the Contractor's written request, the Department tests materials from an untested local source. If satisfactory material from that source is used in the work, the Department does not charge the Contractor for the tests; otherwise, the Department deducts the test cost.

The 2nd sentence of the 7th paragraph of Section 6-2.02, "Possible Local Material Sources," of the Standard Specifications is amended to read:

- The Department deducts the charges for the removed material.

SECTION 7: LEGAL RELATIONS AND RESPONSIBILITIES

Issue Date: May 2, 2008

Section 7-1.01, "Laws To Be Observed," of the Standard Specifications is amended to read:

7-1.01 LAWS TO BE OBSERVED

- Comply with laws, regulations, orders, decrees, and permits applicable to the project. Indemnify and defend the State against any claim or liability arising from the violation of a law, regulation, order, decree, or permit by you or your employees. Immediately report to the Engineer in writing a discrepancy or inconsistency between the contract and a law, regulation, order, decree, or permit.

The 3rd listed requirement of the 1st paragraph of Section 7-1.01A(2), "Prevailing Wage," of the Standard Specifications is amended to read:

3. Upon becoming aware of the subcontractor's failure to pay the specified prevailing rate of wages to the subcontractor's workers, the Contractor must diligently take corrective action to stop or rectify the failure, including withholding sufficient funds due the subcontractor for work performed on the public works project.

The 2nd paragraph of Section 7-1.01A(2), "Prevailing Wage," of the Standard Specifications is amended to read:

- Pursuant to Section 1775 of the Labor Code, the Division of Labor Standards Enforcement must notify the Contractor on a public works project within 15 days of the receipt by the Division of Labor Standards Enforcement of a complaint of the failure of a subcontractor on that public works project to pay workers the general prevailing rate of per diem wages. If the Division of Labor Standards Enforcement determines that employees of a subcontractor were not paid the general prevailing rate of per diem wages and if the Department did not withhold sufficient money under the contract to pay those employees the balance of wages owed under the general prevailing rate of per diem wages, the Contractor must withhold an amount of moneys due the subcontractor sufficient to pay those employees the general prevailing rate of per diem wages if requested by the Division of Labor Standards Enforcement. The Contractor must pay any money withheld from and owed to a subcontractor upon receipt of notification by the Division of Labor Standards Enforcement that the wage

complaint has been resolved. If notice of the resolution of the wage complaint has not been received by the Contractor within 180 days of the filing of a valid notice of completion or acceptance of the public works project, whichever occurs later, the Contractor must pay all moneys withheld from the subcontractor to the Department. The Department withholds these moneys pending the final decision of an enforcement action.

The 2nd paragraph of Section 7-1.01A(3), "Payroll Records," of the Standard Specifications is amended to read:

- The Department withholds the penalties specified in subdivision (g) of Labor Code § 1776 for noncompliance with the requirements in Section 1776.

The 4th paragraph of Section 7-1.01A(3), "Payroll Records," of the Standard Specifications is amended to read:

- The Department withholds for delinquent or inadequate payroll records (Labor Code § 1771.5). If the Contractor has not submitted an adequate payroll record by the month's 15th day for the period ending on or before the 1st of that month, the Department withholds 10 percent of the monthly progress estimate, exclusive of mobilization. The Department does not withhold more than \$10,000 or less than \$1,000.

The 5th paragraph of Section 7-1.01A(3), "Payroll Records," of the Standard Specifications is deleted.

Section 7-1.01A(6), "Workers' Compensation," of the Standard Specifications is amended to read:

7-1.01A(6) (Blank)

The fourth sentence of the second paragraph of Section 7-1.02, "Load Limitations," of the Standard Specifications is amended to read:

- Trucks used to haul treated base, portland cement concrete, or hot mix asphalt shall enter onto the base to dump at the nearest practical entry point ahead of spreading equipment.

Section 7-1.02, "Load Limitations," of the Standard Specifications is amended by adding the following paragraph after the 4th paragraph:

- Loads imposed on existing, new, or partially completed structures shall not exceed the load carrying capacity of the structure or any portion of the structure as determined by AASHTO LRFD with interims and California Amendments, Design Strength Limit State II. The compressive strength of concrete (f'_c) to be used in computing the load carrying capacity shall be the smaller of the following:

1. Actual compressive strength at the time of loading
2. Value of f'_c shown on the plans for that portion of the structure or 2.5 times the value of f'_c (extreme fiber compressive stress in concrete at service loads) shown on the plans for portions of the structure where no f'_c is shown

The first sentence of the eighth paragraph of Section 7-1.09, "Public Safety," of the Standard Specifications is amended to read:

- Signs, lights, flags, and other warning and safety devices and their use shall conform to the requirements set forth in Part 6 of the California MUTCD.

The sixteenth paragraph of Section 7-1.09, "Public Safety," of the Standard Specifications is amended to read:

- When vertical clearance is temporarily reduced to 15.5 feet or less, low clearance warning signs shall be placed in accordance with Part 2 of the California MUTCD and as directed by the Engineer. Signs shall conform to the dimensions, color, and legend requirements of the California MUTCD and these specifications except that the signs shall have black letters and numbers on an orange retroreflective background. W12-2P signs shall be illuminated so that the signs are clearly visible.

The last sentence of the 2nd paragraph of Section 7-1.11, "Preservation of Property," of the Standard Specifications is amended to read:

- The cost of the repairs must be borne by the Contractor and will be deducted.

Section 7-1.12, "Indemnification and Insurance," of the Standard Specifications is amended to read:

7-1.12 INDEMNIFICATION AND INSURANCE

• The Contractor's obligations regarding indemnification of the State of California and the requirements for insurance shall conform to the provisions in Section 3-1.025, "Insurance Policies," and Sections 7-1.12A, "Indemnification," and 7-1.12B, "Insurance," of this Section 7-1.12.

7-1.12A Indemnification

• The Contractor shall defend, indemnify, and save harmless the State, including its officers, employees, and agents (excluding agents who are design professionals) from any and all claims, demands, causes of action, damages, costs, expenses, actual attorneys' fees, losses or liabilities, in law or in equity (Section 7-1.12A Claims) arising out of or in connection with the Contractor's performance of this contract for:

1. Bodily injury including, but not limited to, bodily injury, sickness or disease, emotional injury or death to persons, including, but not limited to, the public, any employees or agents of the Contractor, the State, or any other contractor; and
2. Damage to property of anyone including loss of use thereof; caused or alleged to be caused in whole or in part by any negligent or otherwise legally actionable act or omission of the Contractor or anyone directly or indirectly employed by the Contractor or anyone for whose acts the Contractor may be liable.

• Except as otherwise provided by law, these requirements apply regardless of the existence or degree of fault of the State. The Contractor is not obligated to indemnify the State for Claims arising from conduct delineated in Civil Code Section 2782 and to Claims arising from any defective or substandard condition of the highway that existed at or before the start of work, unless this condition has been changed by the work or the scope of the work requires the Contractor to maintain existing highway facilities and the Claim arises from the Contractor's failure to maintain. The Contractor's defense and indemnity obligation shall extend to Claims arising after the work is completed and accepted if the Claims are directly related to alleged acts or omissions by the Contractor that occurred during the course of the work. State inspection is not a waiver of full compliance with these requirements.

• The Contractor's obligation to defend and indemnify shall not be excused because of the Contractor's inability to evaluate liability or because the Contractor evaluates liability and determine that the Contractor is not liable. The Contractor shall respond within 30 days to the tender of any Claim for defense and indemnity by the State, unless this time has been extended by the State. If the Contractor fails to accept or reject a tender of defense and indemnity within 30 days, in addition to any other remedy authorized by law, the Department may withhold such funds the State reasonably considers necessary for its defense and indemnity until disposition has been made of the Claim or until the Contractor accepts or rejects the tender of defense, whichever occurs first.

• With respect to third-party claims against the Contractor, the Contractor waives all rights of any type to express or implied indemnity against the State, its officers, employees, or agents (excluding agents who are design professionals).

• Nothing in the Contract is intended to establish a standard of care owed to any member of the public or to extend to the public the status of a third-party beneficiary for any of these indemnification specifications.

7-1.12B Insurance

7-1.12B(1) General

• Nothing in the contract is intended to establish a standard of care owed to any member of the public or to extend to the public the status of a third-party beneficiary for any of these insurance specifications.

7-1.12B(2) Casualty Insurance

• The Contractor shall procure and maintain insurance on all of its operations with companies acceptable to the State as follows:

1. The Contractor shall keep all insurance in full force and effect from the beginning of the work through contract acceptance.

2. All insurance shall be with an insurance company with a rating from A.M. Best Financial Strength Rating of A- or better and a Financial Size Category of VII or better.
3. The Contractor shall maintain completed operations coverage with a carrier acceptable to the State through the expiration of the patent deficiency in construction statute of repose set forth in Code of Civil Procedure Section 337.1.

7-1.12B(3) Workers' Compensation and Employer's Liability Insurance

- In accordance with Labor Code Section 1860, the Contractor shall secure the payment of worker's compensation in accordance with Labor Code Section 3700.
- In accordance with Labor Code Section 1861, the Contractor shall submit to the Department the following certification before performing the work:

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

- Contract execution constitutes certification submittal.
- The Contractor shall provide Employer's Liability Insurance in amounts not less than:

1. \$1,000,000 for each accident for bodily injury by accident
2. \$1,000,000 policy limit for bodily injury by disease
3. \$1,000,000 for each employee for bodily injury by disease

- If there is an exposure of injury to the Contractor's employees under the U.S. Longshoremen's and Harbor Workers' Compensation Act, the Jones Act, or under laws, regulations, or statutes applicable to maritime employees, coverage shall be included for such injuries or claims.

7-1.12B(4) Liability Insurance

7-1.12B(4)(a) General

- The Contractor shall carry General Liability and Umbrella or Excess Liability Insurance covering all operations by or on behalf of the Contractor providing insurance for bodily injury liability and property damage liability for the following limits and including coverage for:

1. Premises, operations, and mobile equipment
2. Products and completed operations
3. Broad form property damage (including completed operations)
4. Explosion, collapse, and underground hazards
5. Personal injury
6. Contractual liability

7-1.12B(4)(b) Liability Limits/Additional Insureds

- The limits of liability shall be at least the amounts shown in the following table:

Total Bid	For Each Occurrence ¹	Aggregate for Products/Completed Operation	General Aggregate ²	Umbrella or Excess Liability ³
≤\$1,000,000	\$1,000,000	\$2,000,000	\$2,000,000	\$5,000,000
>\$1,000,000				
≤\$5,000,000	\$1,000,000	\$2,000,000	\$2,000,000	\$10,000,000
>\$5,000,000				
≤\$25,000,000	\$2,000,000	\$2,000,000	\$4,000,000	\$15,000,000
>\$25,000,000	\$2,000,000	\$2,000,000	\$4,000,000	\$25,000,000
1. Combined single limit for bodily injury and property damage. 2. This limit shall apply separately to the Contractor's work under this contract. 3. The umbrella or excess policy shall contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.				

- The Contractor shall not require certified Small Business subcontractors to carry Liability Insurance that exceeds the limits in the table above. Notwithstanding the limits specified herein, at the option of the Contractor, the liability insurance limits for certified Small Business subcontractors of any tier may be less than those limits specified in the table. For Small Business subcontracts, "Total Bid" shall be interpreted as the amount of subcontracted work to a certified Small Business.

- The State, including its officers, directors, agents (excluding agents who are design professionals), and employees, shall be named as additional insureds under the General Liability and Umbrella Liability Policies with respect to liability arising out of or connected with work or operations performed by or on behalf of the Contractor under this contract. Coverage for such additional insureds does not extend to liability:

- Arising from any defective or substandard condition of the roadway which existed at or before the time the Contractor started work, unless such condition has been changed by the work or the scope of the work requires the Contractor to maintain existing roadway facilities and the claim arises from the Contractor's failure to maintain;
- For claims occurring after the work is completed and accepted unless these claims are directly related to alleged acts or omissions of the Contractor that occurred during the course of the work; or
- To the extent prohibited by Insurance Code Section 11580.04

- Additional insured coverage shall be provided by a policy provision or by an endorsement providing coverage at least as broad as Additional Insured (Form B) endorsement form CG 2010, as published by the Insurance Services Office (ISO), or other form designated by the Department.

7-1.12B(4)(c) Contractor's Insurance Policy is Primary

- The policy shall stipulate that the insurance afforded the additional insureds applies as primary insurance. Any other insurance or self-insurance maintained by the State is excess only and shall not be called upon to contribute with this insurance.

7-1.12B(5) Automobile Liability Insurance

- The Contractor shall carry automobile liability insurance, including coverage for all owned, hired, and nonowned automobiles. The primary limits of liability shall be not less than \$1,000,000 combined single limit each accident for bodily injury and property damage. The umbrella or excess liability coverage required under Section 7-1.12B(4)(b) also applies to automobile liability.

7-1.12B(6) Policy Forms, Endorsements, and Certificates

- The Contractor shall provide its General Liability Insurance under Commercial General Liability policy form No. CG0001 as published by the Insurance Services Office (ISO) or under a policy form at least as broad as policy form No. CG0001.

7-1.12B(7) Deductibles

- The State may expressly allow deductible clauses, which it does not consider excessive, overly broad, or harmful to the interests of the State. Regardless of the allowance of exclusions or deductions by the State, the Contractor is responsible for any deductible amount and shall warrant that the coverage provided to the State is in accordance with Section 7-1.12B, "Insurance."

7-1.12B(8) Enforcement

- The Department may assure the Contractor's compliance with its insurance obligations. Ten days before an insurance policy lapses or is canceled during the contract period, the Contractor shall submit to the Department evidence of renewal or replacement of the policy.
- If the Contractor fails to maintain any required insurance coverage, the Department may maintain this coverage and withhold or charge the expense to the Contractor or terminate the Contractor's control of the work in accordance with Section 8-1.08, "Termination of Control."
- The Contractor is not relieved of its duties and responsibilities to indemnify, defend, and hold harmless the State, its officers, agents, and employees by the Department's acceptance of insurance policies and certificates.
- Minimum insurance coverage amounts do not relieve the Contractor for liability in excess of such coverage, nor do they preclude the State from taking other actions available to it, including the withholding of funds under this contract.

7-1.12B(9) Self-Insurance

- Self-insurance programs and self-insured retentions in insurance policies are subject to separate annual review and approval by the State.
- If the Contractor uses a self-insurance program or self-insured retention, the Contractor shall provide the State with the same protection from liability and defense of suits as would be afforded by first-dollar insurance. Execution of the contract is the Contractor's acknowledgement that the Contractor will be bound by all laws as if the Contractor were an insurer as defined under Insurance Code Section 23 and that the self-insurance program or self-insured retention shall operate as insurance as defined under Insurance Code Section 22.

SECTION 8: PROSECUTION AND PROGRESS

Issue Date: August 17, 2007

The 2nd paragraph of Section 8-1.02, "Assignment," of the Standard Specifications is amended to read:

- If the Contractor assigns the right to receive contract payments, the Department accepts the assignment upon the Engineer's receipt of a notice. Assigned payments remain subject to deductions and withholds described in the contract. The Department may use withheld payments for work completion whether payments are assigned or not.

SECTION 9: MEASUREMENT AND PAYMENT

Issue Date: August 17, 2007

The last sentence of the 1st paragraph of Section 9-1.02, "Scope of Payment," of the Standard Specifications is amended to read:

- Neither the payment of any estimate nor of any retained percentage or withhold relieves the Contractor of any obligation to make good any defective work or material.

The 6th paragraph of Section 9-1.03C, "Records," of the Standard Specifications is deleted.

The 2nd sentence of the 14th paragraph of Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications is amended to read:

- Administrative disputes are disputes of administrative deductions or withholds, contract item quantities, contract item adjustments, interest payments, protests of contract change orders as provided in Section 4-1.03A, "Procedure and Protest," and protests of the Weekly Statement of Working Days as provided in Section 8-1.06, "Time of Completion."

Section 9-1.05, "Stop Notices," of the Standard Specifications is amended to read:

9-1.05 STOP NOTICE WITHHOLDS

- The Department may withhold payments to cover claims filed under Civ Code § 3179 et seq.

Section 9, "Measurement and Payment," of the Standard Specifications is amended by adding the following sections:

9-1.053 PERFORMANCE FAILURE WITHHOLDS

- During each estimate period you fail to comply with a contract part, including submittal of a document as specified, the Department withholds a part of the progress payment. The documents include quality control plans, schedules, traffic control plans, and water pollution control submittals.
- For 1 performance failure, the Department withholds 25 percent of the progress payment but does not withhold more than 10 percent of the total bid.
- For multiple performance failures, the Department withholds 100 percent of the progress payment but does not withhold more than 10 percent of the total bid.
- The Department returns performance-failure withholds in the progress payment following the correction of noncompliance.

9-1.055 PENALTY WITHHOLDS

- Penalties include fines and damages that are proposed, assessed, or levied against you or the Department by a governmental agency or citizen lawsuit. Penalties are also payments made or costs incurred in settling alleged permit violations of Federal, State, or local laws, regulations, or requirements. The cost incurred may include the amount spent for mitigation or correcting a violation.
- If you or the Department is assessed a penalty, the Department may withhold the penalty amount until the penalty disposition has been resolved. The Department may withhold penalty funds and notify you within 15 days of the withhold. If the penalty amount is less than the amount being withheld from progress payments for retentions, the Department will not withhold the penalty amount.
- If the penalty is resolved for less than the amount withheld, the Department pays interest at a rate of 6 percent per year on the excess withheld. If the penalty is not resolved, the withhold becomes a deduction.
- Instead of the withhold, you may provide a bond payable to the Department of Transportation equal to the highest estimated liability for any disputed penalties proposed.

9-1.057 PROGRESS WITHHOLDS FOR FEDERAL-AID CONTRACTS

- Section 9-1.057, "Progress Withholds for Federal-Aid Contracts," applies to a Federal-aid contract.
- The Department withholds 10 percent of a partial payment for noncompliant progress. Noncompliant progress occurs when:
 1. Total days to date exceed 75 percent of the revised contract working days
 2. Percent of working days elapsed exceeds the percent of value of work completed by more than 15 percent
- The Engineer determines the percent of working days elapsed by dividing the total days to date by the revised contract working days and converting the quotient to a percentage.
- The Engineer determines the percent of value of work completed by summing payments made to date and the amount due on the current progress estimate, dividing this sum by the current total estimated value of the work, and converting the quotient to a percentage. These amounts are shown on the Progress Payment Voucher.
- When the percent of working days elapsed minus the percent of value of work completed is less than or equal to 15 percent, the Department returns the withhold in the next progress payment.

The 3rd paragraph of Section 9-1.06, "Partial Payments," of the Standard Specifications is amended to read:

- For a non-Federal-aid project, the Department retains 10 percent of the estimated value of the work done and 10 percent of the value of materials estimated to have been furnished and delivered and unused or furnished and stored as part security for the fulfillment of the contract by the Contractor, except that at any time after 20 percent of the work has been completed, if the Engineer finds that satisfactory progress is being made, the Department may reduce the total amount being retained from payment pursuant to the above requirements to 5 percent of the total estimated value of the work and materials and may also reduce the amount retained from any of the remaining partial payments to 5 percent of the estimated value of the work and materials. In addition, on any partial payment made after 95 percent of the work has been completed, the Department may reduce the amount retained from payment pursuant to the requirements of this Section 9-1.06, to such lesser amount as the Department determines is adequate security for the fulfillment of the balance of the work and other requirements of the contract, but in no event is that amount reduced to less than 125 percent of the estimated value of the work yet to be completed as determined by the Engineer. The reduction is made only upon the request of the Contractor and must be approved in writing by the surety on the performance bond and by the surety on the payment bond. The approval of the surety must be submitted to the Disbursing Officer of the Department; the signature of the person executing the approval for the surety must be properly acknowledged and the power of attorney authorizing the person to give that consent must

either accompany the document or be on file with the Department. The retentions specified in this paragraph are those defined in Pub Cont Code § 7107(b).

The 1st sentence of the 4th paragraph of Section 9-1.06, "Partial Payments," of the Standard Specifications is amended to read:

- The Department shall pay monthly to the Contractor, while carrying on the work, the balance not retained, as aforesaid, after deducting therefrom all previous payments and all sums to be deducted or withheld under the provisions of the contract.

The title and 1st and 2nd paragraphs of Section 9-1.065, "Payment of Withheld Funds," of the Standard Specifications are amended to read:

9-1.065 RELEASE OF RETAINED FUNDS

- The Department releases retained funds if you:
 1. Request release of the retention (Pub Cont Code § 10263) in writing
 2. Deposit securities equivalent to the funds you want released into escrow with the State Treasurer or with a bank acceptable to the Department
 3. Are the beneficial owner of and receive interest on the deposited securities substituted for the retained funds

The 2nd sentence Section 9-1.07A, "Payment Prior to Proposed Final Estimate," of the Standard Specifications is amended to read:

- The Department pays the balance due less previous payments, deductions, withholds, and retentions under the provisions of the contract and those further amounts that the Engineer determines to be necessary pending issuance of the proposed final estimate and payment thereon.

The 1st paragraph of Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications is amended to read:

- After acceptance by the Director, the Engineer makes a proposed final estimate of the total amount payable to the Contractor, including an itemization of the total amount, segregated by contract item quantities, extra work, and other basis for payment, and shows each deduction made or to be made for prior payments and amounts to be deducted, withheld, or retained under the provisions of the contract. Prior estimates and payments are subject to correction in the proposed final estimate. The Contractor must submit written approval of the proposed final estimate or a written statement of claims arising under or by virtue of the contract so that the Engineer receives the written approval or statement of claims no later than close of business of the 30th day after receiving the proposed final estimate. The Contractor's receipt of the proposed final estimate must be evidenced by postal receipt. The Engineer's receipt of the Contractor's written approval or statement of claims must be evidenced by postal receipt or the Engineer's written receipt if delivered by hand.

SECTION 12: CONSTRUCTION AREA TRAFFIC CONTROL DEVICES

Issue Date: October 6, 2006

The first sentence of the second paragraph of Section 12-1.01, "Description," of the Standard Specifications is amended to read:

- Attention is directed to Part 6 of the California MUTCD.

Section 12-2.01, "Flaggers," of the Standard Specifications is amended to read:

12-2.01 FLAGGERS

- Flaggers while on duty and assigned to traffic control or to give warning to the public that the highway is under construction and of any dangerous conditions to be encountered as a result thereof, shall perform their duties and shall be provided with the necessary equipment in conformance with Part 6 of the California MUTCD. The equipment shall be furnished and kept clean and in good repair by the Contractor at the Contractor's expense.

The first paragraph of Section 12-3.01, "General," of the Standard Specifications is amended to read:

- In addition to the requirements in Part 6 of the California MUTCD, all devices used by the Contractor in the performance of the work shall conform to the provisions in this Section 12-3.

The second sentence of the first paragraph of Section 12-3.06, "Construction Area Signs," of the Standard Specifications is amended to read:

- Construction area signs are shown in or referred to in Part 6 of the California MUTCD.

The first sentence of the fourth paragraph of Section 12-3.06, "Construction Area Signs," of the Standard Specifications is amended to read:

- All construction area signs shall conform to the dimensions, color and legend requirements of the plans, Part 6 of the California MUTCD and these specifications.

The first sentence of the eighth paragraph of Section 12-3.06, "Construction Area Signs," of the Standard Specifications is amended to read:

- Used signs with the specified sheeting material will be considered satisfactory if they conform to the requirements for visibility and legibility and the colors conform to the requirements in Part 6 of the California MUTCD.

SECTION 19: EARTHWORK

Issue Date: July 31, 2007

Section 19-1.03, "Grade Tolerance," of the Standard Specifications is amended to read:

- Immediately prior to placing subsequent layers of material thereon, the grading plane shall conform to one of the following:
 - A. When hot mix asphalt is to be placed on the grading plane, the grading plane at any point shall not vary more than 0.05-foot above or below the grade established by the Engineer.
 - B. When subbase or base material to be placed on the grading plane is to be paid for by the ton, the grading plane at any point shall not vary more than 0.10-foot above or below the grade established by the Engineer.
 - C. When the material to be placed on the grading plane is to be paid for by the cubic yard, the grading plane at any point shall be not more than 0.05-foot above the grade established by the Engineer.

The first paragraph of Section 19-3.025C, "Soil Cement Bedding," of the Standard Specifications is amended to read:

- Cementitious material used in soil cement bedding shall conform to the provisions in Section 90-2.01, "Cementitious Materials." Supplementary cementitious material will not be required.

The fourth paragraph of Section 19-3.025C, "Soil Cement Bedding," of the Standard Specifications is amended to read:

- The aggregate, cementitious material, and water shall be proportioned either by weight or by volume. Soil cement bedding shall contain not less than 282 pounds of cementitious material per cubic yard. The water content shall be sufficient to produce a fluid, workable mix that will flow and can be pumped without segregation of the aggregate while being placed.

The first paragraph of Section 19-3.062, "Slurry Cement Backfill," of the Standard Specifications is amended to read:

- Slurry cement backfill shall consist of a fluid, workable mixture of aggregate, cementitious material, and water.

The fifth paragraph of Section 19-3.062, "Slurry Cement Backfill," of the Standard Specifications is amended to read:

- Cementitious material shall conform to the provisions in Section 90-2.01, "Cementitious Materials." Supplementary cementitious material will not be required.

The eighth paragraph of Section 19-3.062, "Slurry Cement Backfill," of the Standard Specifications is amended to read:

- The aggregate, cementitious material, and water shall be proportioned either by weight or by volume. Slurry cement backfill shall contain not less than 188 pounds of cementitious material per cubic yard. The water content shall be sufficient to produce a fluid, workable mix that will flow and can be pumped without segregation of the aggregate while being placed.

SECTION 20: EROSION CONTROL AND HIGHWAY PLANTING

Issue Date: August 17, 2007

Section 20-2.03, "Soil Amendment," of the Standard Specifications is amended to read:

20-2.03 SOIL AMENDMENT

- Soil amendment shall comply with the requirements in the California Food and Agricultural Code.
- Soil amendment producers shall comply with the following:
 1. Be fully permitted to produce compost as specified under the California Integrated Waste Management Board, Local Enforcement Agencies and any other State and Local Agencies that regulate Solid Waste Facilities. If exempt from State permitting requirements, the composting facility must certify that it follows guidelines and procedures for production of compost meeting the environmental health standards of Title 14, California Code of Regulations, Division 7, Chapter 3.1, Article 7.
 2. Be a participant in United States Composting Council's Seal of Testing Assurance program.
- Soil amendment shall be composted and may be derived from any single, or mixture of any of the following feedstock materials:
 1. Green material consisting of chipped, shredded, or ground vegetation; or clean processed recycled wood products
 2. Biosolids
 3. Manure
 4. Mixed food waste
- Soil amendment feedstock materials shall be composted to reduce weed seeds, pathogens and deleterious materials as specified under Title 14, California Code of Regulations, Division 7, Chapter 3.1, Article 7, Section 17868.3.
 - Soil amendment shall not be derived from mixed municipal solid waste and must be reasonably free of visible contaminants. Soil amendment must not contain paint, petroleum products, pesticides or any other chemical residues harmful to animal life or plant growth. Soil amendment must not possess objectionable odors.
 - Metal concentrations in soil amendment must not exceed the maximum metal concentrations listed in Title 14, California Code of Regulations, Division 7, Chapter 3.1, Section 17868.2.
 - Soil amendment must comply with the following:

Physical/Chemical Requirements

Property	Test Method	Requirement
pH	*TMECC 04.11-A, Elastometric pH 1:5 Slurry Method, pH Units	6.0–8.0
Soluble Salts	TMECC 04.10-A, Electrical Conductivity 1:5 Slurry Method dS/m (mmhos/cm)	0-10.0
Moisture Content	TMECC 03.09-A, Total Solids & Moisture at 70+/- 5 deg C, % Wet Weight Basis	30–60
Organic Matter Content	TMECC 05.07-A, Loss-On-Ignition Organic Matter Method (LOI), % Dry Weight Basis	30–65
Maturity	TMECC 05.05-A, Germination and Vigor Seed Emergence Seedling Vigor % Relative to Positive Control	80 or Above 80 or Above
Stability	TMECC 05.08-B, Carbon Dioxide Evolution Rate mg CO ₂ -C/g OM per day	8 or below
Particle Size	TMECC 02.02-B Sample Sieving for Aggregate Size Classification % Dry Weight Basis	95% Passing 5/8 inch 70% Passing 3/8 inch
Pathogen	TMECC 07.01-B, Fecal Coliform Bacteria < 1000 MPN/gram dry wt.	Pass
Pathogen	TMECC 07.01-B, Salmonella < 3 MPN/4 grams dry wt.	Pass
Physical Contaminants	TMECC 02.02-C, Man Made Inert Removal and Classification: Plastic, Glass and Metal, % > 4mm fraction	Combined Total: < 1.0
Physical Contaminants	TMECC 02.02-C, Man Made Inert Removal and Classification: Sharps (Sewing needles, straight pins and hypodermic needles), % > 4mm fraction	None Detected

*TMECC refers to "Test Methods for the Examination of Composting and Compost," published by the United States Department of Agriculture and the United States Compost Council (USCC).

- Prior to application, the Contractor shall provide the Engineer with a copy of the soil amendment producer's Compost Technical Data Sheet and a copy of the compost producers STA certification. The Compost Technical Data Sheet shall include laboratory analytical test results, directions for product use, and a list of product ingredients.
- Prior to application, the Contractor shall provide the Engineer with a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

The last 3 paragraphs of Section 20-2.10, "Seed," of the Standard Specifications are deleted.

The last paragraph of Section 20-3.04A, "General," of the Standard Specifications is deleted.

Section 20-4.055, "Pruning," of the Standard Specifications is amended to read:

20-4.055 PRUNING

- Pruning of plants shall be consistent with American National Standards Institute (ANSI), "Tree, Shrub and Other Woody Plant Maintenance Standard Practices," ANSI 300 (Part 1)-2001 and "Best Management Practices Tree Pruning," 2002 (ISBN 1-881956318), published by the International Society of Arboriculture, P.O. Boc 3129, Champaign, IL 61826.

SECTION 25: AGGREGATE SUBBASES

Issue Date: February 16, 2007

The first paragraph of Section 25-1.02A, "Class 1, Class 2, and Class 3 Aggregate Subbases," of the Standard Specifications is amended to read:

• Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone
2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:
 - 5.1. Asphalt concrete
 - 5.2. Portland cement concrete
 - 5.3. Lean concrete base
 - 5.4. Cement treated base

The first paragraph of Section 25-1.02B, "Class 4 Aggregate Subbase," of the Standard Specifications is amended to read:

• Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone
2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:
 - 5.1. Asphalt concrete
 - 5.2. Portland cement concrete
 - 5.3. Lean concrete base
 - 5.4. Cement treated base

SECTION 26: AGGREGATE BASE

Issue Date: February 16, 2007

The first paragraph of Section 26-1.02A, "Class 2 Aggregate Base," of the Standard Specifications is amended to read:

• Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone
2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:
 - 5.1. Asphalt concrete
 - 5.2. Portland cement concrete
 - 5.3. Lean concrete base
 - 5.4. Cement treated base

The first paragraph of Section 26-1.02B, "Class 3 Aggregate Base," of the Standard Specifications is amended to read:

• Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone

2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:
 - 5.1. Asphalt concrete
 - 5.2. Portland cement concrete
 - 5.3. Lean concrete base
 - 5.4. Cement treated base

SECTION 27: CEMENT TREATED BASES

Issue Date: July 31, 2007

The first paragraph of Section 27-1.02, "Materials," of the Standard Specifications is amended to read:

- Cement shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

The third paragraph of Section 27-1.02, "Materials," of the Standard Specifications is amended to read:

- Aggregate for use in Class A cement treated base shall be of such quality that when mixed with cement in an amount not to exceed 5 percent by weight of the dry aggregate and compacted at optimum moisture content, the compressive strength of a sample of the compacted mixture shall not be less than 750 pounds per square inch at 7 days, when tested by California Test 312.

The fourth paragraph of Section 27-1.02, "Materials," of the Standard Specifications is amended to read:

- Aggregate for use in Class B cement treated base shall have a Resistance (R-value) of not less than 60 before mixing with cement and a Resistance (R-value) of not less than 80 after mixing with cement in an amount not to exceed 2.5 percent by weight of the dry aggregate.

The ninth paragraph of Section 27-1.07, "Compacting," of the Standard Specifications is amended to read:

- When surfacing material is hot mix asphalt, the low areas shall be filled with hot mix asphalt conforming to the requirements for the lowest layer of hot mix asphalt to be placed as surfacing. This filling shall be done as a separate operation prior to placing the lowest layer of surfacing, and full compensation for this filling will be considered as included in the contract price paid for cement treated base and no additional compensation will be allowed therefor.

SECTION 28: LEAN CONCRETE BASE

Issue Date: July 31, 2007

The first paragraph of Section 28-1.02, "Materials," of the Standard Specifications is amended to read:

- Cement shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

The sixth paragraph of Section 28-1.02, "Materials," of the Standard Specifications is amended to read:

- Aggregate shall be of such quality that, when mixed with cement in an amount not to exceed 300 pounds per cubic yard, and tested in conformance with the requirements in California Test 548, the compressive strength of a sample will be not less than 700 pounds per square inch at 7 days.

The second paragraph of Section 28-1.06, "Spreading, Compacting and Shaping," of the Standard Specifications is amended to read:

- In advance of curing operations, lean concrete base to be surfaced with hot mix asphalt shall be textured with a drag strip of burlap, a broom or a spring steel tine device which will produce scoring in the finished surface. The scoring shall be

parallel with the centerline or transverse thereto. The operation shall be performed at a time and in a manner to produce the coarsest texture practical for the method used.

The second paragraph of Section 28-1.08, "Surfaces Not Within Tolerance," of the Standard Specifications is amended to read:

- Hardened lean concrete base with a surface lower than 0.05-foot below the grade established by the Engineer shall be removed and replaced with lean concrete base which complies with these specifications, or if permitted by the Engineer, the low areas shall be filled with pavement material as follows:
 1. When pavement material is hot mix asphalt, the low areas shall be filled with hot mix asphalt conforming to the requirements for the lowest layer of hot mix asphalt to be placed as pavement. This shall be done as a separate operation prior to placing the lowest layer of pavement, and full compensation for this filling will be considered as included in the contract price paid per cubic yard for lean concrete base and no additional compensation will be allowed therefor.
 2. When pavement material is portland cement concrete, the low areas shall be filled with pavement concrete at the time and in the same operation that the pavement is placed. Full compensation for this filling will be considered as included in the contract price paid per cubic yard for lean concrete base and no additional compensation will be allowed therefor.

SECTION 29: TREATED PERMEABLE BASES

Issue Date: July 31, 2007

The second paragraph of Section 29-1.02B, "Cement Treated Permeable Base," of the Standard Specifications is amended to read:

- Cement shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

The first paragraph of Section 29-1.04A, "Asphalt Treated Permeable Base," of the Standard Specifications is amended to read:

- Aggregates and asphalt for asphalt treated permeable base shall be stored, proportioned and mixed in the same manner provided for storing, proportioning and mixing aggregates and asphalt for hot mix asphalt in Section 39-1.08, "Production," except as follows:
 1. The aggregate need not be separated into sizes.
 2. The temperature of the aggregate before adding the asphalt binder shall be not less than 275° F nor more than 325° F.
 3. Asphalt treated permeable base stored in excess of 2 hours shall not be used in the work.
 4. The aggregate shall be combined with 2.5 percent paving asphalt by weight of the dry aggregate. After testing samples of the Contractor's proposed aggregate supply, the Engineer may order an increase or decrease in the asphalt content. If an increase or decrease is ordered, and the increase or decrease exceeds the specified amount by more than 0.1-percent by weight of the dry aggregate, the compensation payable to the Contractor for the asphalt treated permeable base will be increased or decreased on the basis of the total increase or decrease in asphalt.
 5. The asphalt content of the asphalt mixture will be determined, at the option of the Engineer, by extraction tests in conformance with the requirements in California Test 310 or 362, or will be determined in conformance with the requirements in California Test 379. The bitumen ratio pounds of asphalt per 100 pounds of dry aggregate shall not vary by more than 0.5-pound of asphalt above or 0.5-pound of asphalt below the amount designated by the Engineer. Compliance with this requirement will be determined either by taking samples from trucks at the plant or from the mat behind the paver before rolling. If the sample is taken from the mat behind the paver, the bitumen ratio shall be not less than the amount designated by the Engineer, less 0.7-pound of asphalt per 100 pounds of dry aggregate.

The second paragraph of Section 29-1.04B, "Cement Treated Permeable Base," of the Standard Specifications is amended to read:

- Cement treated permeable base shall contain not less than 287 pounds of cement per cubic yard.

The first paragraph of Section 29-1.05, "Spreading and Compacting Asphalt Treated Permeable Base," of the Standard Specifications is amended to read:

- Asphalt treated permeable base shall be spread and compacted as specified for hot mix asphalt under the "Method" construction process in Section 39, "Hot Mix Asphalt," and these specifications.

The second paragraph of Section 29-1.07, "Surfaces Not Within Tolerance," of the Standard Specifications is amended to read:

- Hardened treated permeable base with a surface lower than 0.05-foot below the grade established by the Engineer shall be removed and replaced with treated permeable base which complies with these specifications, or if permitted by the Engineer, the low areas shall be filled with pavement material as follows:
 1. When pavement material is hot mix asphalt, the low areas shall be filled with hot mix asphalt conforming to the requirements for the lowest layer of hot mix asphalt to be placed as pavement. This shall be done as a separate operation prior to placing the lowest layer of pavement.
 2. When pavement material is portland cement concrete, the low areas shall be filled with pavement concrete at the time and in the same operation in which the pavement is placed.
 3. Full compensation for filling low areas will be considered as included in the contract price paid per cubic yard for treated permeable base and no additional compensation will be allowed therefor.

SECTION 37: BITUMINOUS SEALS

Issue Date: August 17, 2007

The fourth through sixth paragraphs in Section 37-1.03, "Maintaining Traffic," of the Standard Specifications are amended to read:

- On 2-lane two-way roadways, W8-7 "LOOSE GRAVEL" signs and W13-1 (35) speed advisory signs shall be furnished and placed adjacent to both sides of the traveled way where screenings are being spread on a traffic lane. The first W8-7 sign in each direction shall be placed where traffic first encounters loose screenings, regardless of which lane the screenings are being spread on. The W13-1 (35) signs need not be placed in those areas with posted speed limits of less than 40 MPH. The signs shall be placed at maximum 2,000-foot intervals along each side of the traveled way and at public roads or streets entering the seal coat area as directed by the Engineer.

- On multilane roadways (freeways, expressways and multilane conventional highways) where screenings are being spread on a traffic lane, W8-7 "LOOSE GRAVEL" signs and W13-1 (35) speed advisory signs shall be furnished and placed adjacent to the outside edge of the traveled way nearest to the lane being worked on. The first W8-7 sign shall be placed where the screenings begin with respect to the direction of travel on that lane. The W13-1 (35) signs need not be placed in those areas with posted speed limits of less than 40 MPH. The signs shall be placed at maximum 2,000-foot intervals along the edge of traveled way and at on-ramps, public roads or streets entering the seal coat area as directed by the Engineer.

- The W8-7 and W13-1 signs shall be maintained in place at each location until final brooming of the seal coat surface at that location is completed. The W8-7 and W13-1 signs shall conform to the provisions for construction area signs in Section 12, "Construction Area Traffic Control Devices." The signs may be set on temporary portable supports with the W13-1 below the W8-7 or on barricades with the W13-1 sign alternating with the W8-7 sign.

The second paragraph of Section 37-1.07, "Finishing," of the Standard Specifications is amended to read:

- Rollers shall be oscillating type pneumatic-tired rollers. A minimum of 2 pneumatic-tired rollers conforming to the provisions in Section 39-3.03 "Spreading and Compacting Equipment," shall be furnished.

The second paragraph in Section 37-1.09, "Payment," of the Standard Specifications is amended to read:

- 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 applying seal coat, complete in place, including furnishing, placing, maintaining, and removing W8-7 and W13-1 signs, when required, and temporary supports or barricades for the signs, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

SECTION 39 HOT MIX ASPHALT

Issue Date: March 21, 2008

39-1 GENERAL

39-1.01 DESCRIPTION

- Section 39 includes specifications for producing and placing hot mix asphalt (HMA) by mixing aggregate and asphalt binder at a mixing plant and spreading and compacting the HMA mixture.
 - The special provisions specify one or more type of HMA, including:
 1. Type A
 2. Type B
 3. Open graded friction course (OGFC). OGFC includes hot mix asphalt (open graded), rubberized hot mix asphalt (open graded) (RHMA-O) and rubberized hot mix asphalt (open graded high binder) (RHMA-O-HB)
 4. Rubberized hot mix asphalt (gap graded) (RHMA-G)
 - The special provisions specify the HMA construction process, including:
 1. Standard
 2. Method
 3. Quality Control / Quality Assurance (QC / QA)

39-1.02 MATERIALS

39-1.02A GEOSYNTHETIC PAVEMENT INTERLAYER

- Geosynthetic pavement interlayer must comply with the specifications for pavement reinforcing fabric in Section 88, "Engineering Fabrics."

39-1.02B TACK COAT

- Tack coat must comply with the specifications for asphaltic emulsion in Section 94, "Asphaltic Emulsion," or asphalt binder in Section 92, "Asphalts." Choose the type and grade.

39-1.02C ASPHALT BINDER

- Asphalt binder in HMA must comply with Section 92, "Asphalts," or Section 39-1.02D, "Asphalt Rubber Binder." The special provisions specify the grade.
- Asphalt binder for geosynthetic pavement interlayer must comply with Section 92, "Asphalts." Choose from Grades PG 64-10, PG 64-16, or PG 70-10.

39-1.02D ASPHALT RUBBER BINDER

General

- Use asphalt rubber binder in RHMA-G, RHMA-O, and RHMA-O-HB. Asphalt rubber binder must be a combination of:

1. Asphalt binder
2. Asphalt modifier
3. Crumb rubber modifier (CRM)

- The combined asphalt binder and asphalt modifier must be 80.0 ± 2.0 percent by weight of the asphalt rubber binder.

Asphalt Modifier

- Asphalt modifier must be a resinous, high flash point, and aromatic hydrocarbon, and comply with:

Asphalt Modifier for Asphalt Rubber Binder

Quality Characteristic	ASTM	Specification
Viscosity, m ² /s (x 10 ⁻⁶) at 100 °C	D 445	X ± 3 ^a
Flash Point, CL.O.C., °C	D 92	207 minimum
Molecular Analysis		
Asphaltenes, percent by mass	D 2007	0.1 maximum
Aromatics, percent by mass	D 2007	55 minimum

Note:

^a The symbol "X" is the proposed asphalt modifier viscosity. "X" must be between 19 and 36. A change in "X" requires a new asphalt rubber binder design.

- Asphalt modifier must be from 2.0 percent to 6.0 percent by weight of the asphalt binder in the asphalt rubber binder.

Crumb Rubber Modifier

- CRM consists of a ground or granulated combination of scrap tire CRM and high natural CRM. CRM must be 75.0 ± 2.0 percent scrap tire CRM and 25.0 ± 2.0 percent high natural CRM by total weight of CRM. Scrap tire CRM must be from any combination of automobile tires, truck tires, or tire buffings.
- Sample and test scrap tire CRM and high natural CRM separately. CRM must comply with:

Crumb Rubber Modifier for Asphalt Rubber Binder

Quality Characteristic	Test Method	Specification
Scrap tire CRM gradation (% passing No. 8 sieve)	LP-10	100
High natural CRM gradation (% passing No. 10 sieve)	LP-10	100
Wire in CRM (% max.)	LP-10	0.01
Fabric in CRM (% max.)	LP-10	0.05
CRM particle length (inch max.) ^a	--	3/16
CRM specific gravity ^a	CT 208	1.1 – 1.2
Natural rubber content in high natural CRM (%) ^a	ASTM D 297	40.0 – 48.0

Note:

^a Test at mix design and for Certificate of Compliance.

- Only use CRM ground and granulated at ambient temperature. If steel and fiber are cryogenically separated, it must occur before grinding and granulating. Only use cryogenically produced CRM particles that can be ground or granulated and not pass through the grinder or granulator.
- CRM must be dry, free-flowing particles that do not stick together. CRM must not cause foaming when combined with the asphalt binder and asphalt modifier. You may add calcium carbonate or talc up to 3 percent by weight of CRM.

Asphalt Rubber Binder Design and Profile

- Submit in writing an asphalt rubber binder design and profile. In the design, designate the asphalt, asphalt modifier, and CRM and their proportions. The profile is not a specification and only serves to indicate expected trends in asphalt rubber binder properties during binder production. The profile must include the same component sources for the asphalt rubber binder used.
- Design the asphalt rubber binder from testing you perform for each quality characteristic and for the reaction temperatures expected during production. The 24-hour (1,440-minute) interaction period determines the design profile. At a minimum, mix asphalt rubber binder components, take samples, and perform and record the following tests:

Asphalt Rubber Binder Reaction Design Profile

Test	Minutes of Reaction ^a							Limits
	45	60	90	120	240	360	1440	

Cone penetration @ 77 °F, 0.10-mm (ASTM D 217)	X ^b				X		X	25 - 70
Resilience @ 77 °F, percent rebound (ASTM D 5329)	X				X		X	18 min.
Field softening point, °F (ASTM D 36)	X				X		X	125 - 165
Viscosity, centipoises (LP-11)	X	X	X	X	X	X	X	1,500 - 4,000

Notes:

^a Six hours (360 minutes) after CRM addition, reduce the oven temperature to 275 °F for a period of 16 hours. After the 16-hour (1320 minutes) cool-down after CRM addition, reheat the binder to the reaction temperature expected during production for sampling and testing at 24 hours (1440 minutes).

^b "X" denotes required testing

Asphalt Rubber Binder

- After interacting for a minimum of 45 minutes, asphalt rubber binder must comply with:

Asphalt Rubber Binder

Quality Characteristic	Test for Quality Control or Acceptance	Test Method	Specification	
			Minimum	Maximum
Cone penetration @ 77 °F, 0.10-mm	Acceptance	ASTM D 217	25	70
Resilience @ 77 °F, percent rebound	Acceptance	ASTM D 5329	18	--
Field softening point, °F	Acceptance	ASTM D 36	125	165
Viscosity @ 350 °F, centipoises	Quality Control	LP-11	1,500	4,000

39-1.02E AGGREGATE

- Aggregate must be clean and free from deleterious substances. Aggregate:
 1. Retained on the No. 4 sieve is coarse
 2. Passing the No. 4 sieve is fine
 3. Added and passing the No. 30 sieve is supplemental fine, including:
 - 3.1. Hydrated lime
 - 3.2. Portland cement
 - 3.3. Fines from dust collectors
- The special provisions specify the aggregate gradation for each HMA type.
- The specified aggregate gradation is before the addition of asphalt binder and includes supplemental fines. The Engineer tests for aggregate grading under California Test 202, modified by California Test 105 if there is a difference in specific gravity of 0.2 or more between the coarse and fine parts of different aggregate blends.
 - Choose a sieve size target value (TV) within each target value limit presented in the aggregate gradation tables.

**Aggregate Gradation
(Percentage Passing)
HMA Types A and B**

3/4-inch HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
1"	100	—
3/4"	90 - 100	TV ±5
1/2"	70 - 90	TV ±6
No. 4	45 - 55	TV ±7
No. 8	32 - 40	TV ±5
No. 30	12 - 21	TV ±4
No. 200	2 - 7	TV ±2

1/2-inch HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/4"	100	—
1/2"	95 - 99	TV ±6
3/8"	75 - 95	TV ±6
No. 4	55 - 66	TV ±7
No. 8	38 - 49	TV ±5
No. 30	15 - 27	TV ±4
No. 200	2 - 8	TV ±2

3/8-inch HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
1/2"	100	—
3/8"	95 - 100	TV ±6
No. 4	58 - 72	TV ±7
No. 8	34 - 48	TV ±6
No. 30	18 - 32	TV ±5
No. 200	2 - 9	TV ±2

No. 4 HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/8"	100	—
No. 4	95 - 100	TV ±7
No. 8	72 - 77	TV ±7
No. 30	37 - 43	TV ±7
No. 200	2 - 12	TV ±4

Rubberized Hot Mix Asphalt - Gap Graded (RHMA-G)

3/4-inch RHMA-G

Sieve Sizes	Target Value Limits	Allowable Tolerance
1"	100	—
3/4"	95 - 100	TV ±5
1/2"	83 - 87	TV ±6
3/8"	65 - 70	TV ±6
No. 4	28 - 42	TV ±7
No. 8	14 - 22	TV ±5
No. 200	0 - 6	TV ±2

1/2-inch RHMA-G

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/4"	100	—
1/2"	90 - 100	TV ±6
3/8"	83 - 87	TV ±6
No. 4	28 - 42	TV ±7
No. 8	14 - 22	TV ±5
No. 200	0 - 6	TV ±2

Open Graded Friction Course (OGFC)

1-inch OGFC

Sieve Sizes	Target Value Limits	Allowable Tolerance
1 1/2"	100	—
1"	99 - 100	TV ±5
3/4"	85 - 96	TV ±5
1/2"	55 - 71	TV ±6
No. 4	10 - 25	TV ±7
No. 8	6 - 16	TV ±5
No. 200	1 - 6	TV ±2

1/2-inch OGFC

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/4"	100	—
1/2"	95 - 100	TV ±6
3/8"	78 - 89	TV ±6
No. 4	28 - 37	TV ±7
No. 8	7 - 18	TV ±5
No. 30	0 - 10	TV ±4
No. 200	0 - 3	TV ±2

3/8-inch OGFC

Sieve Sizes	Target Value Limits	Allowable Tolerance
1/2"	100	—
3/8"	90 - 100	TV ±6
No. 4	29 - 36	TV ±7
No. 8	7 - 18	TV ±6
No. 30	0 - 10	TV ±5
No. 200	0 - 3	TV ±2

- Before the addition of asphalt binder and lime treatment, aggregate must comply with:

Aggregate Quality

Quality Characteristic	Test Method	HMA Type			
		A	B	RHMA-G	OGFC
Percent of crushed particles Coarse aggregate (% min.)	CT 205				
One fractured face		90	25	--	90
Two fractured faces		75	--	90	75
Fine aggregate (% min.) (Passing No. 4 sieve and retained on No. 8 sieve.)					
One fractured face		70	20	70	90
Los Angeles Rattler (% max.)	CT 211				
Loss at 100 Rev.		12	--	12	12
Loss at 500 Rev.		45	50	40	40
Sand equivalent (min.) ^a	CT 217	47	42	47	--
Fine aggregate angularity (% min.) ^b	AASHTO T 304 Method A	45	45	45	--
Flat and elongated particles (% max. by weight @ 5:1)	ASTM D 4791	10	10	10	10
K _c factor (max.)	CT 303	1.7	1.7	1.7	--
K _f factor (max.)	CT 303	1.7	1.7	1.7	--

Notes:

^a Reported value must be the average of 3 tests from a single sample.

^b The Engineer waives this specification if HMA contains less than 10 percent of nonmanufactured sand by weight of total aggregate.

39-1.02F RECLAIMED ASPHALT PAVEMENT

- You may produce HMA using reclaimed asphalt pavement (RAP). HMA produced using RAP must comply with the specifications for HMA except aggregate quality specifications do not apply to RAP. You may substitute RAP aggregate for a part of the virgin aggregate in HMA in a quantity not exceeding 15 percent of the aggregate blend. Do not use RAP in OGFC and RHMA-G.

- Assign the substitution rate of RAP aggregate for virgin aggregate with the job mix formula (JMF) submittal. The JMF must include the percent of RAP used. If you change your assigned RAP aggregate substitution rate by more than 5 percent (within the 15 percent limit), submit a new JMF.

- Process RAP from asphalt concrete. You may process and stockpile RAP throughout the project's life. Prevent material contamination and segregation. Store RAP in stockpiles on smooth surfaces free of debris and organic material. Processed RAP stockpiles must consist only of homogeneous RAP.

39-1.03 HOT MIX ASPHALT MIX DESIGN REQUIREMENTS

39-1.03A GENERAL

- A mix design consists of performing California Test 367 and laboratory procedures on combinations of aggregate gradations and asphalt binder contents to determine the optimum binder content (OBC) and HMA mixture qualities. If RAP is used, use Laboratory Procedure LP-9. The result of the mix design becomes the proposed JMF.

- Use Form CEM-3512 to document aggregate quality and mix design data. Use Form CEM-3511 to present the JMF.

- Laboratories testing aggregate qualities and preparing the mix design and JMF must be qualified under the Department's Independent Assurance Program. Take samples under California Test 125.

- The Engineer reviews the aggregate qualities, mix design, and JMF and verifies and accepts the JMF.

- You may change the JMF during production. Do not use the changed JMF until the Engineer accepts it. Except when adjusting the JMF in compliance with Section 39-1.03E, "Job Mix Formula Verification," perform a new mix design and submit in writing a new JMF submittal for changing any of the following:

- Target asphalt binder percentage
- Asphalt binder supplier
- Asphalt rubber binder supplier

4. Component materials used in asphalt rubber binder or percentage of any component materials
5. Combined aggregate gradation
6. Aggregate sources
7. Substitution rate for RAP aggregate of more than 5 percent
8. Any material in the JMF

• For OGFC, submit in writing a complete JMF submittal except asphalt binder content. The Engineer determines the asphalt binder content under California Test 368 within 20 days of your complete JMF submittal and provides you a Form CEM-3513.

39-1.03B HOT MIX ASPHALT FOR JOB MIX FORMULA

- Determine the proposed JMF from a mix design that complies with:

Hot Mix Asphalt for Job Mix Formula

Quality Characteristic	Test Method	HMA Type		
		A	B	RHMA-G
Air voids content (%)	CT 367 ^a	4.0	4.0	Special Provisions
Voids in mineral aggregate (% min.)	LP-2			
No. 4 grading		17.0	17.0	--
3/8" grading		15.0	15.0	--
1/2" grading		14.0	14.0	18.0 – 23.0 ^b
3/4" grading		13.0	13.0	18.0 – 23.0 ^b
Voids filled with asphalt (%)	LP-3			Note d
No. 4 grading		76.0 – 80.0	76.0 – 80.0	
3/8" grading		73.0 – 76.0	73.0 – 76.0	
1/2" grading		65.0 – 75.0	65.0 – 75.0	
3/4" grading		65.0 – 75.0	65.0 – 75.0	
Dust proportion	LP-4			Note d
No. 4 and 3/8" gradings		0.9 – 2.0	0.9 – 2.0	
1/2" and 3/4" gradings		0.6 – 1.3	0.6 – 1.3	
Stabilometer value (min.) ^c	CT 366			
No. 4 and 3/8" gradings		30	30	--
1/2" and 3/4" gradings		37	35	23

Notes:

^a Calculate the air voids content of each specimen using California Test 309 and Lab Procedure LP-1. Modify California Test 367, Paragraph C5, to use the exact air voids content specified in the selection of OBC.

^b Voids in mineral aggregate for RHMA-G must be within this range.

^c Modify California Test 304, Part 2.B.2.c: "After compaction in the compactor, cool to 140 °± 5 °F by allowing the briquettes to cool at room temperature for 0.5-hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."

^d Report this value in the JMF submittal.

- For stability, prepare 3 briquettes separately at the proposed JMF and test for compliance. Report the average of 3 tests. Prepare new briquettes and test if the range of stability for the 3 briquettes is more than 12 points. The average air void content may vary from the specified air void content by ±0.5 percent.

- You may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If you use the same briquettes and tests using bulk specific gravity fail, you may prepare 3 new briquettes and determine a new bulk specific gravity. If you choose to determine bulk specific gravity with new briquettes and your tests fail, you may not test again using the stability briquettes.

39-1.03C JOB MIX FORMULA SUBMITTAL

- Each JMF submittal must consist of:

1. Proposed JMF on Form CEM-3511
2. Mix design documentation on Form CEM-3512 dated within 12 months of submittal

3. JMF verification on Form CEM-3513 dated within 12 months of production start, if applicable
4. Materials Safety Data Sheets (MSDS) for:
 - 4.1. Asphalt binder
 - 4.2. Base asphalt binder used in asphalt rubber binder
 - 4.3. CRM and asphalt modifier used in asphalt rubber binder
 - 4.4. Blended asphalt rubber binder mixture
 - 4.5. Supplemental fine aggregate except fines from dust collectors
 - 4.6. Antistrip additives

- If the JMF must be verified or if the Engineer requests, submit samples of the following materials in labeled containers weighing no more than 50 pounds each (notify the Engineer at least 2 business days before sampling materials):

1. Coarse, fine, and supplemental fine aggregate from stockpiles, cold feed belts, or hot bins. Samples must include at least 120 pounds for each coarse aggregate, 80 pounds for each fine aggregate, and 10 pounds for each type of supplemental fines. The Department combines these aggregate samples to comply with the JMF target values submitted on Form CEM-3511.
2. RAP from stockpiles or RAP system. Samples must be at least 60 pounds.
3. Asphalt binder from the binder supplier. Samples must be in two 1-quart cylindrical shaped cans with open top and friction lids.
4. Asphalt rubber binder with the components blended in the proportions to be used. Samples must be in four 1-quart cylindrical shaped cans with open top and friction lids.

39-1.03D JOB MIX FORMULA REVIEW

- The Engineer reviews each mix design and proposed JMF within 5 business days from the complete JMF submittal. The review consists of reviewing the mix design procedures and comparing the proposed JMF with the specifications.
- The Engineer may verify aggregate qualities during this review period.

39-1.03E JOB MIX FORMULA VERIFICATION

- If you cannot submit a Department-verified JMF on Form CEM-3513 dated within 12 months before HMA production, the Engineer verifies the JMF.
- Based on your testing and production experience, you may submit on Form CEM-3511 an adjusted JMF before the Engineer's verification testing. JMF adjustments may include a change in the:

1. Asphalt binder content target value up to ± 0.6 percent from the optimum binder content value submitted on Form CEM-3512 except do not adjust the target value for asphalt rubber binder for RHMA-G below 7.0 percent
2. Aggregate gradation target values within the target value limits specified in the aggregate gradation tables

- Test samples from the HMA plant to be used to determine possible JMF adjustments.
- For HMA Type A, Type B, and RHMA-G, the Engineer verifies the JMF from samples taken from HMA produced by the plant to be used. The Engineer verifies each proposed JMF within 20 days of receiving a complete JMF submittal and verification samples. Verification is testing for compliance with the specifications for:

1. Aggregate quality
2. Aggregate gradation (JMF TV \pm tolerance)
3. Asphalt binder content (JMF TV \pm tolerance)
4. HMA quality specified in the table Hot Mix Asphalt for Job Mix Formula except:
 - 4.1. Air voids content (design value \pm 2.0 percent)
 - 4.2. Voids filled with asphalt (report only if an adjustment for asphalt binder content target value is less than \pm 0.3 percent from optimum binder content)
 - 4.3. Dust proportion (report only if an adjustment for asphalt binder content target value is less than \pm 0.3 percent from optimum binder content)

- If you request in writing, the Engineer verifies RHMA-G quality requirements within 3 business days of sampling.
- In the Engineer's presence, under California Test 125, and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

• Sample aggregate from cold feed belts or hot bins. Sample RAP from the RAP system. Sample HMA from any of the following locations:

1. The plant
2. A truck
3. A windrow
4. Behind a paver

• You may sample from a different project including a non-Department project if you make arrangements for the Engineer to be present during sampling.

• For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 split parts to the Engineer and use 1 part for your testing.

• The Engineer prepares 3 briquettes from a single split sample. To verify the JMF for stability, the Engineer tests the 3 briquettes and reports the average of 3 tests. The Engineer prepares new briquettes if the range of stability for the 3 briquettes is more than 12 points.

• The Engineer may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If the Engineer uses the same briquettes and the tests using bulk specific gravity fail, the Engineer may prepare 3 new briquettes and determine a new bulk specific gravity. If the Engineer chooses to determine bulk specific gravity with new briquettes and the Engineer's tests fail, the Engineer may not test again using the stability briquettes.

• If the Engineer verifies the JMF, the Engineer provides you a Form CEM-3513.

• If the Engineer's tests on plant-produced samples do not verify the JMF, the Engineer notifies you in writing and you must submit a new JMF submittal or submit an adjusted JMF based on your testing. JMF adjustments may include a change in the:

1. Asphalt binder content target value up to ± 0.6 percent from the optimum binder content value submitted on Form CEM-3512 except do not adjust the target value for asphalt rubber binder for RHMA-G below 7.0 percent
2. Aggregate gradation target values within the target value limits specified in the aggregate gradation tables

• You may adjust the JMF only once due to a failed verification test. An adjusted JMF requires a new Form CEM-3511 and verification of a plant-produced sample.

• The Engineer reverifies the JMF if HMA production has stopped for longer than 30 days and the verified JMF is older than 12 months.

• For each HMA type and aggregate size specified, the Engineer verifies at the State's expense up to 2 proposed JMF including a JMF adjusted after verification failure. The Engineer deducts \$3,000 from payments for each verification exceeding this limit. This deduction does not apply to verifications initiated by the Engineer or if a JMF expires while HMA production is stopped longer than 30 days.

39-1.03F JOB MIX FORMULA ACCEPTANCE

• You may start HMA production if:

1. The Engineer's review of the JMF shows compliance with the specifications.
2. The Department has verified the JMF within 12 months before HMA production.
3. The Engineer accepts the verified JMF.

39-1.04 CONTRACTOR QUALITY CONTROL

39-1.04A GENERAL

• Establish, maintain, and change a quality control system to ensure materials and work comply with the specifications. Submit quality control test results to the Engineer within 3 days of a request except when QC / QA is specified.

39-1.04B PREPAVING CONFERENCE

- Meet with the Engineer at a prepaving conference at a mutually agreed time and place. Discuss methods of performing the production and paving work.

39-1.04C ASPHALT RUBBER BINDER

- Take asphalt rubber binder samples from the feed line connecting the asphalt rubber binder tank to the HMA plant. Sample and test asphalt rubber binder under Laboratory Procedure LP-11.
- Test asphalt rubber binder for compliance with the viscosity specifications in Section 39-1.02, "Materials." During asphalt rubber binder production and HMA production using asphalt rubber binder, measure viscosity every hour with not less than 1 reading for each asphalt rubber binder batch. Log measurements with corresponding time and asphalt rubber binder temperature. Submit the log daily in writing.
- Submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance." With the Certificate of Compliance, submit test results in writing for CRM and asphalt modifier with each truckload delivered to the HMA plant. A Certificate of Compliance for asphalt modifier must not represent more than 5,000 pounds. Use an AASHTO-certified laboratory for testing.
- Sample and test gradation and wire and fabric content of CRM once per 10,000 pounds of scrap tire CRM and once per 3,400 pounds of high natural CRM. Sample and test scrap tire CRM and high natural CRM separately.
- Submit certified weight slips in writing for the CRM and asphalt modifier furnished.

39-1.04D AGGREGATE

- Determine the aggregate moisture content and RAP moisture content in continuous mixing plants at least twice a day during production and adjust the plant controller. Determine the RAP moisture content in batch mixing plants at least twice a day during production and adjust the plant controller.

39-1.04E RECLAIMED ASPHALT PAVEMENT

- Perform RAP quality control testing each day.
- Sample RAP once daily and determine the RAP aggregate gradation under Laboratory Procedure LP-9 and submit the results to the Engineer in writing with the combined aggregate gradation.

39-1.04F CORES

- For Standard and QC / QA projects, take 4-inch or 6-inch diameter cores at least once every 5 business days. Take 1 core for every 250 tons of HMA from random locations the Engineer designates. Take cores in the Engineer's presence and backfill and compact holes with material authorized by the Engineer. Before submitting a core to the Engineer, mark it with the core's location and place it in a protective container.
- If a core is damaged, replace it with a core taken within 1 foot longitudinally from the original core. Relocate any core located within 1 foot of a rumble strip to 1 foot transversely away from the rumble strip.

39-1.04G BRIQUETTES

- Prepare 3 briquettes separately for each stability determination. Report the average of 3 tests. Prepare new briquettes and test if the range of stability for the 3 briquettes is more than 12 points.
- You may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If you use the same briquettes and tests using bulk specific gravity fail, you may prepare 3 new briquettes and determine a new bulk specific gravity. If you choose to determine bulk specific gravity with new briquettes and your tests fail, you may not test again using the stability briquettes.

39-1.05 ENGINEER'S ACCEPTANCE

- The Engineer's acceptance of HMA is specified in the sections for each HMA construction process.
- The Engineer samples materials for testing under California Test 125 and the applicable test method. Sampling must be statistically-based and random.
- The Engineer takes HMA and aggregate samples during production and splits each sample into 2 parts. The Engineer tests 1 part to verify quality control test results and reserves and stores the remaining part. If you request, the Engineer splits samples and provides you with a part.

- The Engineer accepts HMA based on:

1. Accepted JMF

2. Accepted QCP for Standard and QC / QA
3. Compliance with the HMA Acceptance tables
4. Acceptance of a lot for QC / QA
5. Visual inspection

- The Engineer prepares 3 briquettes separately for each stability determination. The Engineer reports the average of 3 tests. The Engineer prepares new briquettes and test if the range of stability for the 3 briquettes is more than 12 points.

- The Engineer may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If the Engineer uses the same briquettes and the tests using bulk specific gravity fail, the Engineer may prepare 3 new briquettes and determine a new bulk specific gravity. If the Engineer chooses to determine bulk specific gravity with new briquettes and the Engineer tests fail, the Engineer may not test again using the stability briquettes.

39-1.06 DISPUTE RESOLUTION

- You and the Engineer must work together to avoid potential conflicts and to resolve disputes regarding test result discrepancies. Notify the Engineer in writing within 5 days of receiving a test result if you dispute the test result.

- If you or the Engineer dispute each other's test results, submit written quality control test results and copies of paperwork including worksheets used to determine the disputed test results to the Engineer. An Independent Third Party (ITP) performs referee testing. Before the ITP participates in a dispute resolution, the ITP must be accredited under the Department's Independent Assurance Program. The ITP must be independent of the project. By mutual agreement, the ITP is chosen from:

1. A Department laboratory
2. A Department laboratory in a district or region not in the district or region the project is located
3. The Transportation Laboratory
4. A laboratory not currently employed by you or your HMA producer

- If split quality control or acceptance samples are not available, the ITP uses any available material representing the disputed HMA for evaluation.

39-1.07 PRODUCTION START-UP EVALUATION

- The Engineer evaluates HMA production and placement at production start-up.
- Within the first 750 tons produced on the first day of HMA production, in the Engineer's presence and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

- Sample aggregate from cold feed belts or hot bins. Take RAP samples from the RAP system. Sample HMA under California Test 125. For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 split parts to the Engineer and keep 1 part.

- For Standard and QC / QA projects, you and the Engineer must test the split samples for compliance with specifications. You and the Engineer must report test results in writing within 3 business days of sampling.

- For Standard and QC / QA projects, take 4-inch or 6-inch diameter cores within the first 750 tons on the first day of HMA production. For each core, the Engineer reports the bulk specific gravity determined under California Test 308, Method A in addition to the percent of maximum theoretical density. You may test for in-place density at the core locations and include them in your production tests for percent of maximum theoretical density.

39-1.08 PRODUCTION

39-1.08A GENERAL

- Produce HMA in a batch mixing plant or a continuous mixing plant. Proportion aggregate by hot or cold feed control.

- HMA plants must be Department-qualified. Before production, the HMA plant must have a current qualification under the Department's Materials Plant Quality Program.
- During production, you may adjust:

1. Hot or cold feed proportion controls for virgin aggregate and RAP
2. The set point for asphalt binder content

39-1.08B MIXING

- Mix HMA ingredients into a homogeneous mixture of coated aggregates.
- Asphalt binder must be between 275 °F and 375 °F when mixed with aggregate.
- Asphalt rubber binder must be between 350 °F and 425 °F when mixed with aggregate.
- Aggregate must not be more than 325 °F when mixed with asphalt binder. Aggregate temperature specifications do not apply when you use RAP.
- HMA with or without RAP must not be more than 325 °F.

39-1.08C ASPHALT RUBBER BINDER

- Deliver scrap tire CRM and high natural CRM in separate bags.
- Either proportion and mix asphalt binder, asphalt modifier, and CRM simultaneously or premix the asphalt binder and asphalt modifier before adding CRM. If you premix asphalt binder and asphalt modifier, the asphalt binder must be between 350 °F and 425 °F when you add asphalt modifier. Mix them for at least 20 minutes. When you add CRM, the asphalt binder and asphalt modifier must be between 350 °F and 425 °F.
- Do not use asphalt rubber binder during the first 45 minutes of the reaction period. During this period, the asphalt rubber binder mixture must be between 350 °F and the lower of 425 °F or 10 °F below the asphalt binder's flash point indicated in the MSDS.
- If any asphalt rubber binder is not used within 4 hours after the reaction period, discontinue heating. If the asphalt rubber binder drops below 350 °F, reheat before use. If you add more scrap tire CRM to the reheated asphalt rubber binder, the binder must undergo a 45-minute reaction period. The added scrap tire CRM must not exceed 10 percent of the total asphalt rubber binder weight. Reheated and reacted asphalt rubber binder must comply with the viscosity specifications for asphalt rubber binder in Section 39-1.02, "Materials." Do not reheat asphalt rubber binder more than twice.

39-1.09 SUBGRADE, TACK COAT, AND GEOSYNTHETIC PAVEMENT INTERLAYER

39-1.09A GENERAL

- Prepare subgrade or apply tack coat to surfaces receiving HMA. If specified, place geosynthetic pavement interlayer over a coat of asphalt binder.

39-1.09B SUBGRADE

- Subgrade to receive HMA must comply with the compaction and elevation tolerance specifications in the sections for the material involved. Subgrade must be free of loose and extraneous material. If HMA is paved on existing base or pavement, remove loose paving particles, dirt, and other extraneous material by any means including flushing and sweeping.

39-1.09C TACK COAT

- Apply tack coat:
 1. To existing pavement including planed surfaces
 2. Between HMA layers
 3. To vertical surfaces of:
 - 3.1. Curbs
 - 3.2. Gutters
 - 3.3. Construction joints
- Before placing HMA, apply tack coat in 1 application at the minimum residual rate specified for the condition of the underlying surface:

Tack Coat Application Rates for HMA Type A, Type B, and RHMA-G

HMA Overlay over:	Minimum Residual Rates (gallons per square yard)		
	CSS1/CSS1h, SS1/SS1h and QS1h/CQS1h Asphaltic Emulsion	CRS1/CRS2, RS1/RS2 and QS1/CQS1 Asphaltic Emulsion	Asphalt Binder and PMRS2/PMCRS2 and PMRS2h/PMCRS2h Asphaltic Emulsion
New HMA (between layers)	0.02	0.03	0.02
Existing AC and PCC pavement	0.03	0.04	0.03
Planned pavement	0.05	0.06	0.04

Tack Coat Application Rates for OGFC

OGFC over:	Minimum Residual Rates (gallons per square yard)		
	CSS1/CSS1h, SS1/SS1h and QS1h/CQS1h Asphaltic Emulsion	CRS1/CRS2, RS1/RS2 and QS1/CQS1 Asphaltic Emulsion	Asphalt Binder and PMRS2/PMCRS2 and PMRS2h/PMCRS2h Asphaltic Emulsion
New HMA	0.03	0.04	0.03
Existing AC and PCC pavement	0.05	0.06	0.04
Planned pavement	0.06	0.07	0.05

- Apply to vertical surfaces with a residual tack coat rate that will thoroughly coat the vertical face without running off.
- If you request in writing and the Engineer authorizes, you may change tack coat rates.
- Immediately in advance of placing HMA, apply additional tack coat to damaged areas or where loose or extraneous material is removed.
 - Close areas receiving tack coat to traffic. Do not track tack coat onto pavement surfaces beyond the job site.
 - Asphalt binder tack coat must be between 285 °F and 350 °F when applied.

39-1.09D GEOSYNTHETIC PAVEMENT INTERLAYER

- Before placing the geosynthetic pavement interlayer and asphalt binder:
 1. Repair cracks 1/4 inch and wider, spalls, and holes in the pavement. The State pays for this repair work under Section 4-1.03D, "Extra Work."
 2. Clean the pavement of loose and extraneous material.
 - Immediately before placing the interlayer, apply 0.25 gallon ± 0.03 gallon of asphalt binder per square yard of interlayer or until the fabric is saturated. Apply asphalt binder the width of the geosynthetic pavement interlayer plus 3 inches on each side. At interlayer overlaps, apply asphalt binder on the lower interlayer the same overlap distance as the upper interlayer.
 - Align and place the interlayer with no overlapping wrinkles, except a wrinkle that overlaps may remain if it is less than 1/2 inch thick. If the overlapping wrinkle is more than 1/2 inch thick, cut the wrinkle out and overlap the interlayer no more than 2 inches.
 - The minimum HMA thickness over the interlayer must be 0.12 foot thick including conform tapers. Do not place the interlayer on a wet or frozen surface.
 - Overlap the interlayer borders between 2 inches and 4 inches. In the direction of paving, overlap the following roll with the preceding roll at any break.
 - You may use rolling equipment to correct distortions or wrinkles in the interlayer.
 - If asphalt binder tracked onto the interlayer or brought to the surface by construction equipment causes interlayer displacement, cover it with a small quantity of HMA.
 - Before placing HMA on the interlayer, do not expose the interlayer to:
 1. Traffic except for crossings under traffic control and only after you place a small HMA quantity
 2. Sharp turns from construction equipment
 3. Damaging elements

- Pave HMA on the interlayer during the same work shift.

39-1.10 SPREADING AND COMPACTING EQUIPMENT

- Paving equipment for spreading must be:
 1. Self-propelled
 2. Mechanical
 3. Equipped with a screed or strike-off assembly that can distribute HMA the full width of a traffic lane
 4. Equipped with a full-width compacting device
 5. Equipped with automatic screed controls and sensing devices that control the thickness, longitudinal grade, and transverse screed slope
- Install and maintain grade and slope references.
- The screed must produce a uniform HMA surface texture without tearing, shoving, or gouging.
- The paver must not leave marks such as ridges and indentations unless you can eliminate them by rolling.
- Rollers must be equipped with a system that prevents HMA from sticking to the wheels. You may use a parting agent that does not damage the HMA or impede the bonding of layers.
 - In areas inaccessible to spreading and compacting equipment:
 1. Spread the HMA by any means to obtain the specified lines, grades and cross sections.
 2. Use a pneumatic tamper, plate compactor, or equivalent to achieve thorough compaction.

39-1.11 TRANSPORTING, SPREADING, AND COMPACTING

- Do not pave HMA on a wet pavement or frozen surface.
- You may deposit HMA in a windrow and load it in the paver if:
 1. Paver is equipped with a hopper that automatically feeds the screed
 2. Loading equipment can pick up the windrowed material and deposit it in the paver hopper without damaging base material
 3. Activities for deposit, pick-up, loading, and paving are continuous
 4. HMA temperature in the windrow does not fall below 260 °F
- You may pave HMA in 1 or more layers on areas less than 5 feet wide and outside the traveled way including shoulders. You may use mechanical equipment other than a paver for these areas. The equipment must produce a uniform smoothness and texture.
 - HMA handled, spread, or windrowed must not stain the finished surface of any improvement including pavement.
 - Do not use petroleum products such as kerosene or diesel fuel to release HMA from trucks, spreaders, or compactors.
 - HMA must be free of:
 1. Segregation
 2. Coarse or fine aggregate pockets
 3. Hardened lumps
- Longitudinal joints in the top layer must match specified lane edges. Alternate longitudinal joint offsets in lower layers at least 0.5 foot from each side of the specified lane edges. You may request in writing other longitudinal joint placement patterns.
 - Until the adjoining through lane's top layer has been paved, do not pave the top layer of:
 1. Shoulders
 2. Tapers
 3. Transitions
 4. Road connections
 5. Private drives
 6. Curve widenings
 7. Chain control lanes
 8. Turnouts

9. Left turn pockets

- If the number of lanes change, pave each through lane's top layer before paving a changing lane's top layer. Simultaneous to paving a through lane's top layer, you may pave an adjoining area's top layer including shoulders. Do not operate spreading equipment on any area's top layer until completing final compaction.

- If HMA (leveling) is specified, fill and level irregularities and ruts with HMA before spreading HMA over base, existing surfaces, or bridge decks. You may use mechanical equipment other than a paver for these areas. The equipment must produce a uniform smoothness and texture. HMA used to change an existing surface's cross slope or profile is not HMA (leveling).

- If placing HMA against the edge of existing pavement, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material without damaging the surface remaining in place. If placing HMA against the edge of a longitudinal or transverse construction joint and the joint is damaged or not placed to a neat line, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material without damaging the surface remaining in place. Repair or remove and replace damaged pavement at your expense.

- Rolling must leave the completed surface compacted and smooth without tearing, cracking, or shoving. Complete finish rolling activities before the pavement surface temperature is:

1. Below 150 °F for HMA with unmodified binder
2. Below 140 °F for HMA with modified binder
3. Below 200 °F for RHMA-G

- If a vibratory roller is used as a finish roller, turn the vibrator off.
- Do not use a pneumatic tired roller to compact RHMA-G.
- For Standard and QC/QA, if a 3/4-inch aggregate grading is specified, you may use a 1/2-inch aggregate grading if the total layer thickness is between 0.125 foot and 0.20 foot thick.

- Spread and compact HMA under Section 39-3.03, "Spreading and Compacting Equipment," and Section 39-3.04, "Transporting, Spreading, and Compacting," if either:

1. Total paved thickness is less than 0.15 foot.
2. Total paved thickness is less than 0.20 foot and a 3/4-inch aggregate grading is specified and used.
3. You spread and compact at:

- 3.1. Asphalt concrete surfacing replacement areas
- 3.2. Leveling courses
- 3.3. Detours not included in the final roadway prism
- 3.4. Areas the Engineer determines conventional compaction and compaction measurement methods are impeded

- Do not allow traffic on new HMA pavement until its mid-depth temperature is below 160 °F.
- If you request in writing and the Engineer authorizes, you may cool HMA Type A and Type B with water when rolling activities are complete. Apply water under Section 17, "Watering."

- Spread sand at a rate between 1 pound and 2 pounds per square yard on new RHMA-G, RHMA-O, and RHMA-O-HB pavement when finish rolling is complete. Sand must be free of clay or organic matter. Sand must comply with Section 90-3.03, "Fine Aggregate Grading." Keep traffic off the pavement until spreading sand is complete.

39-1.12 SMOOTHNESS

39-1.12A GENERAL

- Determine HMA smoothness with a profilograph and a straightedge.
- Smoothness specifications do not apply to OGFC placed on existing pavement not constructed under the same project.

- If portland cement concrete is placed on HMA:

1. Cold plane the HMA finished surface to within specified tolerances if it is higher than the grade specified by the Engineer.
2. Remove and replace HMA if the finished surface is lower than 0.05 foot below the grade specified by the Engineer.

39-1.12B STRAIGHTEDGE

- The HMA pavement top layer must not vary from the lower edge of a 12-foot long straightedge:

1. More than 0.01 foot when the straight edge is laid parallel with the centerline
2. More than 0.02 foot when the straightedge is laid perpendicular to the centerline and extends from edge to edge of a traffic lane
3. More than 0.02 foot when the straightedge is laid within 24 feet of a pavement conform

39-1.12C PROFILOGRAPH

- Under California Test 526, determine the zero (null) blanking band Profile Index (PI₀) and must-grinds on the top layer of HMA Type A, Type B, and RHMA-G pavement. Take 2 profiles within each traffic lane, 3 feet from and parallel with the edge of each lane.
 - A must-grind is a deviation of 0.3 inch or more in a length of 25 feet. You must correct must-grinds.
 - For OGFC, only determine must-grinds when placed over HMA constructed under the same project. The top layer of the underlying HMA must comply with the smoothness specifications before placing OGFC.
 - Profile pavement in the Engineer's presence. Choose the time of profiling.
 - On tangents and horizontal curves with a centerline radius of curvature 2,000 feet or more, the PI₀ must be at most 3 inches per 0.1-mile section.
 - On horizontal curves with a centerline radius of curvature between 1,000 feet and 2,000 feet including pavement within the superelevation transitions, the PI₀ must be at most 6 inches per 0.1-mile section.
 - Before the Engineer accepts HMA pavement for smoothness, submit written final profilograms.
 - Submit 1 electronic copy of profile information in Microsoft Excel and 1 electronic copy of longitudinal pavement profiles in ".erd" format or other ProVAL compatible format to the Engineer and to:

Smoothness@dot.ca.gov

- The following HMA pavement areas do not require a PI₀. You must measure these areas with a 12-foot straightedge and determine must-grinds with a profilograph:

1. New HMA with a total thickness less than or equal to 0.25 foot
2. HMA sections of city or county streets and roads, turn lanes and collector lanes that are less than 1,500 feet in length

- The following HMA pavement areas do not require a PI₀. You must measure these areas with a 12-foot straightedge:

1. Horizontal curves with a centerline radius of curvature less than 1,000 feet including pavement within the superelevation transitions of those curves
2. Within 12 feet of a transverse joint separating the pavement from:
 - 2.1. Existing pavement not constructed under the same project
 - 2.2. A bridge deck or approach slab
3. Exit ramp termini, truck weigh stations, and weigh-in-motion areas
4. If steep grades and superelevation rates greater than 6 percent are present on:
 - 4.1. Ramps
 - 4.2. Connectors
5. Turn lanes and areas around manholes or drainage transitions
6. Acceleration and deceleration lanes for at-grade intersections
7. Shoulders and miscellaneous areas
8. HMA pavement within 3 feet from and parallel to the construction joints formed between curbs, gutters, or existing pavement

39-1.12D SMOOTHNESS CORRECTION

- If the top layer of HMA Type A, Type B, or RHMA-G pavement does not comply with the smoothness specifications, grind the pavement to within tolerances, remove and replace it, or place an overlay of HMA. The Engineer must authorize your choice of correction before the work begins.

- Remove and replace the areas of OGFC not in compliance with the must-grind and straightedge specifications, except you may grind OGFC for correcting smoothness:

1. At a transverse joint separating the pavement from pavement not constructed under the same project
2. Within 12 feet of a transverse joint separating the pavement from a bridge deck or approach slab

- Corrected HMA pavement areas must be uniform rectangles with edges:

1. Parallel to the nearest HMA pavement edge or lane line
2. Perpendicular to the pavement centerline

- After correcting for smoothness, measure the corrected HMA pavement surface with a profilograph and a 12-foot straightedge until the pavement is within specified tolerances. If a must-grind area or straightedged pavement cannot be corrected to within specified tolerances, remove and replace the pavement.

- On ground areas not overlaid with OGFC, apply fog seal coat under Section 37-1, "Seal Coats."

39-1.13 MISCELLANEOUS AREAS AND DIKES

- Miscellaneous areas are outside the traveled way and include:

1. Median areas not including inside shoulders
2. Island areas
3. Sidewalks
4. Gutters
5. Gutter flares
6. Ditches
7. Overside drains
8. Aprons at the ends of drainage structures

- Spread miscellaneous areas in 1 layer and compact to the specified lines and grades.

- For miscellaneous areas and dikes:

1. Do not submit a JMF.
2. Choose the 3/8-inch or 1/2-inch HMA Type A and Type B aggregate gradations.
3. Minimum asphalt binder content must be 6.8 percent for 3/8-inch aggregate and 6.0 percent for 1/2-inch aggregate. If you request in writing and the Engineer authorizes, you may reduce the minimum asphalt binder content.
4. Choose asphalt binder Grade PG 70-10 or the same grade specified for HMA.

39-1.14 SHOULDER RUMBLE STRIP

- Construct shoulder rumble strips by rolling or grinding indentations in the top layer of new HMA surfacing.
- Select the method and equipment for constructing ground-in indentations.
- Do not construct shoulder rumble strips on structures or approach slabs.
- Construct rumble strips within 2 inches of the specified alignment. Roller or grinding equipment must be equipped with a sighting device enabling the operator to maintain the rumble strip alignment.
 - Rolled-in indentations must not vary from the specified dimensions by more than 10 percent.
 - Ground-in indentations must comply with the specified dimensions within 0.06 inch in depth or 10 percent in length and width.
 - The Engineer orders grinding or removal and replacement of noncompliant rumble strips to bring them within specified tolerances. Ground surface areas must be neat and uniform in appearance.
 - The grinding equipment must be equipped with a vacuum attachment to remove residue.
 - Dispose of removed material under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way."
 - On ground areas, apply fog seal coat under Section 37-1, "Seal Coats."

39-2 STANDARD

39-2.01 DESCRIPTION

- If HMA is specified as Standard, construct it under Section 39-1, "General," this Section 39-2, "Standard," and Section 39-5, "Measurement and Payment."

39-2.02 CONTRACTOR QUALITY CONTROL

39-2.02A QUALITY CONTROL PLAN

• Establish, implement, and maintain a Quality Control Plan (QCP) for HMA. The QCP must describe the organization and procedures you will use to:

1. Control the quality characteristics
2. Determine when corrective actions are needed (action limits)
3. Implement corrective actions

• When you submit the proposed JMF, submit the written QCP. You and the Engineer must discuss the QCP during the prepaying conference.

• The QCP must address the elements affecting HMA quality including:

1. Aggregate
2. Asphalt binder
3. Additives
4. Production
5. Paving

39-2.02B QUALITY CONTROL TESTING

• Perform sampling and testing at the specified frequency for the following quality characteristics:

Minimum Quality Control – Standard

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	HMA Type			
			A	B	RHMA-G	OGFC
Aggregate gradation ^a	CT 202	1 per 750 tons and any remaining part	JMF ± Tolerance ^b	JMF ± Tolerance ^b	JMF ± Tolerance ^b	JMF ± Tolerance ^b
Sand equivalent (min.) ^c	CT 217		47	42	47	--
Asphalt binder content (%)	CT 379 or 382		JMF ± 0.45	JMF ± 0.45	JMF ± 0.50	JMF +0.50 -0.70
HMA moisture content (% max.)	CT 226 or CT 370	1 per 2,500 tons but not less than 1 per paving day	1.0	1.0	1.0	1.0
Percent of maximum theoretical density (%) ^{d, e}	Quality control plan	2 per business day (min.)	91 - 97	91 - 97	91 - 97	--
Stabilometer value (min.) ^{e, f} No. 4 and 3/8" gradings 1/2" and 3/4" gradings	CT 366	One per 4,000 tons or 2 per 5 business days, whichever is more	30	30	--	--
			37	35	23	--
Air voids content (%) ^{e, g}	CT 367		4 ± 2	4 ± 2	Specification ± 2	--
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants ^h	CT 226 or CT 370	2 per day during production	--	--	--	--
Percent of crushed particles coarse aggregate (% min.) One fractured face Two fractured faces Fine aggregate (% min) (Passing No. 4 sieve and retained on No. 8 sieve.) One fractured face	CT 205	As necessary and designated in the QCP. At least once per project	90	25	--	90
			75	--	90	75
			70	20	70	90
Los Angeles Rattler (% max.) Loss at 100 rev. Loss at 500 rev.	CT 211		12 45	-- 50	12 40	12 40

Flat and elongated particles (% max. by weight @ 5:1)	ASTM D 4791		Report only	Report only	Report only	Report only
Fine aggregate angularity (% min.)	AASHTO T 304, Method A		Report only	Report only	Report only	--
Voids filled with asphalt (%) ⁱ No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-3		76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	Report only	--
Voids in mineral aggregate (% min.) ⁱ No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-2		17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0 – 23.0 ^j 18.0 – 23.0 ^j	--
Dust proportion ⁱ No. 4 and 3/8" gradings 1/2" and 3/4" gradings	LP-4		0.9 – 2.0 0.6 – 1.3	0.9 – 2.0 0.6 – 1.3	Report only	--
Smoothness	Section 39-1.12	--	12-foot straightedge, must-grind, and PI ₀	12-foot straightedge, must-grind, and PI ₀	12-foot straightedge, must-grind, and PI ₀	12-foot straightedge and must-grind
Asphalt rubber binder viscosity @ 350 °F, centipoises	Section 39-1.02D	--	--	--	1,500 – 4,000	1,500 – 4,000
Crumb rubber modifier	Section 39-1.02D	--	--	--	Section 39-1.02D	Section 39-1.02D

Notes:

^a Determine combined aggregate gradation containing RAP under Laboratory Procedure LP-9.

^b The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."

^c Report the average of 3 tests from a single split sample.

^d Required for HMA Type A, Type B, and RHMA-G if the total paved thickness is at least 0.15 foot.

^e Determine maximum theoretical density (California Test 309) at the frequency specified for Test Maximum Density under California Test 375, Part 5.D.

^f Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ± 5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."

^g Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

^h For adjusting the plant controller at the HMA plant.

ⁱ Report only if the adjustment for asphalt binder content target value is less than ± 0.3 percent from OBC.

^j Voids in mineral aggregate for RHMA-G must be within this range.

• For any single quality characteristic except smoothness, if 2 consecutive quality control test results do not comply with the action limits or specifications:

1. Stop production.
2. Notify the Engineer in writing.
3. Take corrective action.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

39-2.03 ENGINEER'S ACCEPTANCE

39-2.03A TESTING

- The Engineer samples for acceptance testing and tests for:

HMA Acceptance - Standard

Quality Characteristic	Test Method	HMA Type							
		A	B	RHMA-G	OGFC				
Aggregate gradation ^a	CT 202	JMF ± Tolerance ^c	JMF ± Tolerance ^c	JMF ± Tolerance ^c	JMF ± Tolerance ^c				
Sieve						3/4	1/2	3/8	
						"	"	"	
1/2"						X ^b			
3/8"							X		
No. 4								X	
No. 8						X	X	X	
No. 200	X	X	X						
Sand equivalent (min.) ^d	CT 217	47	42	47	--				
Asphalt binder content (%)	CT 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.5	JMF +0.50 -0.70				
HMA moisture content (% max.)	CT 226 or CT 370	1.0	1.0	1.0	1.0				
Percent of maximum theoretical density (%) ^{e, f}	CT 375	91 – 97	91 – 97	91 – 97	--				
Stabilometer value (min.) ^{d, g}	CT 366	30	30	--	--				
No. 4 and 3/8" gradings									
1/2" and 3/4" gradings	37	35	23	--					
Air voids content (%) ^{d, h}	CT 367	4 ± 2	4 ± 2	Specification ± 2	--				
Percent of crushed particles	CT 205	90	25	--	90				
Coarse aggregate (% min.)									
One fractured face									
Two fractured faces						75	--	90	75
Fine aggregate (% min.)									
(Passing No. 4 sieve and retained on No. 8 sieve.)	70	20	70	90					
One fractured face									
Los Angeles Rattler (% max.)	CT 211	12	--	12	12				
Loss at 100 rev.		45	50	40	40				
Loss at 500 rev.									
Fine aggregate angularity (% min.)	AASHTO T 304, Method A	Report only	Report only	Report only	--				
Flat and elongated particles (% max. by weight @ 5:1)	ASTM D 4791	Report only	Report only	Report only	Report only				
Voids filled with asphalt (%) ⁱ	LP-3	76.0 – 80.0	76.0 – 80.0	Report only	--				
No. 4 grading									
3/8" grading						73.0 – 76.0	73.0 – 76.0		
1/2" grading						65.0 – 75.0	65.0 – 75.0		
3/4" grading						65.0 – 75.0	65.0 – 75.0		
Voids in mineral aggregate (% min.) ⁱ	LP-2	17.0	17.0	--	--				
No. 4 grading									
3/8" grading						15.0	15.0		
1/2" grading						14.0	14.0	18.0 – 23.0 ^j	
3/4" grading						13.0	13.0	18.0 – 23.0 ^j	
Dust proportion ⁱ	LP-4	0.9 – 2.0	0.9 – 2.0	Report only	--				
No. 4 and 3/8" gradings									
1/2" and 3/4" gradings						0.6 – 1.3	0.6 – 1.3		
Smoothness	Section 39-1.12	12-foot straightedge,	12-foot straightedge,	12-foot straightedge,	12-foot straightedge				

		must-grind, and PI ₀	must-grind, and PI ₀	must-grind, and PI ₀	and must-grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92
Asphalt rubber binder	Various	--	--	Section 92- 1.02(C) and Section 39- 1.02D	Section 92- 1.02(C) and Section 39- 1.02D
Asphalt modifier	Various	--	--	Section 39- 1.02D	Section 39- 1.02D
Crumb rubber modifier	Various	--	--	Section 39- 1.02D	Section 39- 1.02D

^a The Engineer determines combined aggregate gradations containing RAP under Laboratory Procedure LP-9.

^b "X" denotes the sieves the Engineer considers for the specified aggregate gradation.

^c The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."

^d The Engineer reports the average of 3 tests from a single split sample.

^e The Engineer determines percent of maximum theoretical density if the total paved thickness is at least 0.15 foot under California Test 375 except the Engineer uses:

1. California Test 308, Method A, to determine in-place density of each core instead of using the nuclear gauge in Part 4, "Determining In-Place Density By The Nuclear Density Device."
2. California Test 309 to determine maximum theoretical density instead of calculating test maximum density in Part 5, "Determining Test Maximum Density."

^f The Engineer determines maximum theoretical density (California Test 309) at the frequency specified for Test Maximum Density under California Test 375, Part 5.D.

^g Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ±5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."

^h The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

ⁱ Report only if the adjustment for asphalt binder content target value is less than ± 0.3 percent from OBC.

^j Voids in mineral aggregate for RHMA-G must be within this range.

- No single test result may represent more than the smaller of 750 tons or 1 day's production.
- For any single quality characteristic except smoothness, if 2 consecutive acceptance test results do not comply with the specifications:

1. Stop production.
2. Take corrective action.
3. In the Engineer's presence, take samples and split each sample into 4 parts. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Engineer tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

- The Engineer tests the core you take from each 250 tons of HMA production. The Engineer determines the percent of maximum theoretical density for each core by determining the core's density and dividing by the maximum theoretical density.

- If the total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot, the Engineer determines the percent of maximum theoretical density from cores taken from the final layer measured the full depth of the total paved HMA thickness.

- For percent of maximum theoretical density, the Engineer determines a deduction for each test result outside the specifications in compliance with:

Reduced Payment Factors for Percent of Maximum Theoretical Density

HMA Type A and B and RHMA-G Percent of Maximum Theoretical Density	Reduced Payment Factor	HMA Type A and B and RHMA-G Percent of Maximum Theoretical Density	Reduced Payment Factor
91.0	0.0000	97.0	0.0000
90.9	0.0125	97.1	0.0125
90.8	0.0250	97.2	0.0250
90.7	0.0375	97.3	0.0375
90.6	0.0500	97.4	0.0500
90.5	0.0625	97.5	0.0625
90.4	0.0750	97.6	0.0750
90.3	0.0875	97.7	0.0875
90.2	0.1000	97.8	0.1000
90.1	0.1125	97.9	0.1125
90.0	0.1250	98.0	0.1250
89.9	0.1375	98.1	0.1375
89.8	0.1500	98.2	0.1500
89.7	0.1625	98.3	0.1625
89.6	0.1750	98.4	0.1750
89.5	0.1875	98.5	0.1875
89.4	0.2000	98.6	0.2000
89.3	0.2125	98.7	0.2125
89.2	0.2250	98.8	0.2250
89.1	0.2375	98.9	0.2375
89.0	0.2500	99.0	0.2500
< 89.0	Remove and Replace	> 99.0	Remove and Replace

39-2.04 TRANSPORTING, SPREADING, AND COMPACTING

- Determine the number of rollers needed to obtain the specified density and surface finish.

39-3 METHOD

39-3.01 DESCRIPTION

- If HMA is specified as Method, construct it under Section 39-1, "General," this Section 39-3, "Method," and Section 39-5, "Measurement and Payment."

39-3.02 ENGINEER'S ACCEPTANCE

39-3.02A TESTING

- The Engineer samples for acceptance testing and tests for:

HMA Acceptance - Method

Quality Characteristic	Test Method	HMA Type			
		A	B	RHMA-G	OGFC
Aggregate gradation ^a	CT 202	JMF ± Tolerance ^b	JMF ± Tolerance ^b	JMF ± Tolerance ^b	JMF ± Tolerance ^b
Sand equivalent (min.) ^c	CT 217	47	42	47	--
Asphalt binder content (%)	CT 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.5	JMF +0.50 -0.70
HMA moisture content (% max.)	CT 226 or CT 370	1.0	1.0	1.0	1.0
Stabilometer value (min.) ^{c, d}	CT 366				
No. 4 and 3/8" gradings		30	30	--	--
1/2" and 3/4" gradings		37	35	23	--
Percent of crushed particles	CT 205				
Coarse aggregate (% min.)					
One fractured face		90	25	--	90
Two fractured faces		75	--	90	75
Fine aggregate (% min.) (Passing No. 4 sieve and retained on No. 8 sieve.)					
One fractured face		70	20	70	90
Los Angeles Rattler (% max.)	CT 211				
Loss at 100 rev.		12	--	12	12
Loss at 500 rev.		45	50	40	40
Air voids content (%) ^{c, e}	CT 367	4 ± 2	4 ± 2	Specification ± 2	--
Fine aggregate angularity (% min.)	AASHTO T 304, Method A	Report only	Report only	Report only	--
Flat and elongated particles (% max. by weight @ 5:1)	ASTM D 4791	Report only	Report only	Report only	Report only
Voids filled with asphalt (%) ^f	LP-3			Report only	--
No. 4 grading		76.0 – 80.0	76.0 – 80.0		
3/8" grading		73.0 – 76.0	73.0 – 76.0		
1/2" grading		65.0 – 75.0	65.0 – 75.0		
3/4" grading		65.0 – 75.0	65.0 – 75.0		
Voids in mineral aggregate (% min.) ^f	LP-2				--
No. 4 grading		17.0	17.0	--	
3/8" grading		15.0	15.0	--	
1/2" grading		14.0	14.0	18.0 – 23.0 ^g	
3/4" grading		13.0	13.0	18.0 – 23.0 ^g	
Dust proportion ^f	LP-4			Report only	--
No. 4 and 3/8" gradings		0.9 – 2.0	0.9 – 2.0		
1/2" and 3/4" gradings		0.6 – 1.3	0.6 – 1.3		
Smoothness	Section 39-1.12	12-foot straightedge and must-grind	12-foot straightedge and must-grind	12-foot straightedge and must-grind	12-foot straightedge and must-grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92

Asphalt rubber binder	Various	--	--	Section 92-1.02(C) and Section 39-1.02D	Section 92-1.02(C) and Section 39-1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
Crumb rubber modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D

^a The Engineer determines combined aggregate gradations containing RAP under Laboratory Procedure LP-9.

^b The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."

^c The Engineer reports the average of 3 tests from a single split sample.

^d Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ±5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."

^e The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

^f Report only if the adjustment for asphalt binder content target value is less than ± 0.3 percent from OBC.

^g Voids in mineral aggregate for RHMA-G must be within this range.

- No single test result may represent more than the smaller of 750 tons or 1 day's production.
- For any single quality characteristic except smoothness, if 2 consecutive acceptance test results do not comply with the specifications:

1. Stop production.
2. Take corrective action.
3. In the Engineer's presence, take samples and split each sample into 4 parts. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Engineer tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

39-3.03 SPREADING AND COMPACTING EQUIPMENT

- Each paver spreading HMA Type A and Type B must be followed by 3 rollers:
 1. One vibratory roller specifically designed to compact HMA. The roller must be capable of at least 2,500 vibrations per minute and must be equipped with amplitude and frequency controls. The roller's gross static weight must be at least 7.5 tons.
 2. One oscillating type pneumatic-tired roller at least 4 feet wide. Pneumatic tires must be of equal size, diameter, type, and ply. The tires must be inflated to 60 psi minimum and maintained so that the air pressure does not vary more than 5 psi.
 3. One steel-tired, 2-axle tandem roller. The roller's gross static weight must be at least 7.5 tons.
- Each roller must have a separate operator. Rollers must be self-propelled and reversible.
- Compact RHMA-G under the specifications for compacting HMA Type A and Type B except do not use pneumatic-tired rollers.
 - Compact OGFC with steel-tired, 2-axle tandem rollers. If placing over 300 tons of OGFC per hour, use at least 3 rollers for each paver. If placing less than 300 tons of OGFC per hour, use at least 2 rollers for each paver. Each roller must weigh between 126 pounds to 172 pounds per linear inch of drum width. Turn the vibrator off.

39-3.04 TRANSPORTING, SPREADING, AND COMPACTING

- Pave HMA in maximum 0.25-foot thick compacted layers.
- If the surface to be paved is both in sunlight and shade, pavement surface temperatures are taken in the shade.
- Spread HMA Type A and Type B only if atmospheric and surface temperatures are:

Minimum Atmospheric and Surface Temperatures

Compacted Layer Thickness, feet	Minimum Atmospheric and Surface Temperatures			
	Atmospheric, ° F		Surface, ° F	
	Unmodified Asphalt Binder	Modified Asphalt Binder ^a	Unmodified Asphalt Binder	Modified Asphalt Binder ^a
< 0.15	55	50	60	55
0.15 – 0.25	45	45	50	50

Note:

^a Except asphalt rubber binder.

- If the asphalt binder for HMA Type A and Type B is:
 1. Unmodified asphalt binder, complete:
 - 1.1. First coverage of breakdown compaction before the surface temperature drops below 250 °F
 - 1.2. Breakdown and intermediate compaction before the surface temperature drops below 200 °F
 - 1.3. Finish compaction before the surface temperature drops below 150 °F
 2. Modified asphalt binder, complete:
 - 2.1. First coverage of breakdown compaction before the surface temperature drops below 240 °F
 - 2.2. Breakdown and intermediate compaction before the surface temperature drops below 180 °F
 - 2.3. Finish compaction before the surface temperature drops below 140 °F
- For RHMA-G:
 1. Only spread and compact if the atmospheric temperature is at least 55 °F and the surface temperature is at least 60 °F.
 2. Complete the first coverage of breakdown compaction before the surface temperature drops below 280 °F.
 3. Complete breakdown and intermediate compaction before the surface temperature drops below 250 °F.
 4. Complete finish compaction before the surface temperature drops below 200 °F.
 5. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.
- For OGFC with unmodified asphalt binder:
 1. Only spread and compact if the atmospheric temperature is at least 55 °F and the surface temperature is at least 60 °F.
 2. Complete first coverage using 2 rollers before the surface temperature drops below 240 °F.
 3. Complete all compaction before the surface temperature drops below 200 °F.
 4. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.
- For OGFC with modified asphalt binder except asphalt rubber binder:
 1. Only spread and compact if the atmospheric temperature is at least 50 °F and the surface temperature is at least 50 °F.
 2. Complete first coverage using 2 rollers before the surface temperature drops below 240 °F.
 3. Complete all compaction before the surface temperature drops below 180 °F.
 4. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.
- For RHMA-O and RHMA-O-HB:
 1. Only spread and compact if the atmospheric temperature is at least 55 °F and surface temperature is at least 60 °F.
 2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 280 °F.
 3. Complete compaction before the surface temperature drops below 250 °F.

4. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until the mixture is transferred to the paver's hopper or to the pavement surface.
 - For RHMA-G and OGFC, tarpaulins are not required if the time from discharge to truck until transfer to the paver's hopper or the pavement surface is less than 30 minutes.
 - HMA compaction coverage is the number of passes needed to cover the paving width. A pass is 1 roller's movement parallel to the paving in either direction. Overlapping passes are part of the coverage being made and are not a subsequent coverage. Do not start a coverage until completing the prior coverage.
 - Start rolling at the lower edge and progress toward the highest part.
 - Perform breakdown compaction of each layer of HMA Type A, Type B, and RHMA-G with 3 coverages using a vibratory roller. The speed of the vibratory roller in miles per hour must not exceed the vibrations per minute divided by 1,000. If the HMA layer thickness is less than 0.08 foot, turn the vibrator off. The Engineer may order fewer coverages if the HMA layer thickness is less than 0.15 foot.
 - Perform intermediate compaction of each layer of HMA Type A and Type B with 3 coverages using a pneumatic-tired roller at a speed not to exceed 5 mph.
 - Perform finish compaction of HMA Type A, Type B, and RHMA-G with 1 coverage using a steel-tired roller.
 - Compact OGFC with 2 coverages using steel-tired rollers.

39-4 QUALITY CONTROL / QUALITY ASSURANCE

39-4.01 DESCRIPTION

- If HMA is specified as Quality Control / Quality Assurance, construct it under Section 39-1, "General," this Section 39-4, "Quality Control / Quality Assurance," and Section 39-5, "Measurement and Payment."

39-4.02 GENERAL

- The QC / QA construction process consists of:
 1. Establishing, maintaining, and changing if needed a quality control system providing assurance the HMA complies with the specifications
 2. Sampling and testing at specified intervals, or sublots, to demonstrate compliance and to control process
 3. The Engineer sampling and testing at specified intervals to verify testing process and HMA quality
 4. The Engineer using test results, statistical evaluation of verified quality control tests, and inspection to accept HMA for payment
- A lot is a quantity of HMA. The Engineer designates a new lot when:
 1. 20 sublots are complete
 2. The JMF changes
 3. Production stops for more than 30 days
- Each lot consists of no more than 20 sublots. A subplot is 750 tons except HMA paved at day's end greater than 250 tons is a subplot. If HMA paved at day's end is less than 250 tons, you may either make this quantity a subplot or include it in the previous subplot's test results for statistical evaluation.

39-4.03 CONTRACTOR QUALITY CONTROL

39-4.03A GENERAL

- Use a composite quality factor, QF_C , and individual quality factors, QF_{QC_i} , to control your process and evaluate quality control program. For quality characteristics without quality factors, use your quality control plan's action limits to control process.
 - Control HMA quality including:
 1. Materials
 2. Proportioning
 3. Spreading and compacting
 4. Finished roadway surface
 - Develop, implement, and maintain a quality control program that includes:

1. Inspection
2. Sampling
3. Testing

39-4.03B QUALITY CONTROL PLAN

- With the JMF submittal, submit a written Quality Control Plan (QCP). The QCP must comply with the Department's Quality Control Manual for Hot Mix Asphalt Production and Placement. Discuss the QCP with the Engineer during the pre-paving conference.

- The Engineer reviews each QCP within 5 business days from the submittal. Hold HMA production until the Engineer accepts the QCP in writing. The Engineer's QCP acceptance does not mean your compliance with the QCP will result in acceptable HMA. Section 39-1.05, "Engineer's Acceptance," specifies HMA acceptance.

- The QCP must include the name and qualifications of a Quality Control Manager. The Quality Control Manager administers the QCP and during paving must be at the job site within 3 hours of receiving notice. The Quality Control Manager must not be any of the following on the project:

1. Foreman
2. Production or paving crewmember
3. Inspector
4. Tester

- The QCP must include action limits and details of corrective action you will take if a test result for any quality characteristic falls outside an action limit.

- As work progresses, you must submit a written QCP supplement to change quality control procedures, personnel, tester qualification status, or laboratory accreditation status.

39-4.03C QUALITY CONTROL INSPECTION, SAMPLING, AND TESTING

- Sample, test, inspect, and manage HMA quality control.

- Provide a roadway inspector while HMA paving activities are in progress. Provide a plant inspector during HMA production.

- Inspectors must comply with the Department's Quality Control Manual for Hot Mix Asphalt Production and Placement.

- Provide a testing laboratory and personnel for quality control testing. Provide the Engineer unrestricted access to the quality control activities. Before providing services for the project, the Engineer reviews, accredits, and qualifies the testing laboratory and personnel under the Department's Independent Assurance Program.

- The minimum random sampling and testing for quality control is:

Minimum Quality Control – QC / QA

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	HMA Type			Location of Sampling	Max. Reporting Time Allowance
			A	B	RHMA-G		
Aggregate gradation ^a	CT 202	1 per 750 tons	JMF ± Tolerance ^b	JMF ± Tolerance ^b	JMF ± Tolerance ^b	CT 125	24 hours
Asphalt binder content (%)	CT 379 or 382		JMF ±0.45	JMF ±0.45	JMF ±0.5	Loose Mix Behind Paver See CT 125	
Percent of maximum theoretical density (%) ^{c, d}	QC Plan		92 - 96	92 - 96	91 - 96	QC Plan	
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants ^e	CT 226 or CT 370	2 per day during production	--	--	--	Stock-piles or cold feed belts	--
Sand equivalent (min.) ^f	CT 217	1 per 750 tons	47	42	47	CT 125	24 hours
HMA moisture content (% max.)	CT 226 or CT 370	1 per 2,500 tons but not less than 1 per paving day	1.0	1.0	1.0	Loose Mix Behind Paver See CT 125	24 hours
Stabilometer Value (min.) ^{f, h} No. 4 and 3/8" gradings 1/2" and 3/4" gradings	CT 366	1 per 4,000 tons or 2 per 5 business days, whichever is more	30	30	--		48 hours
			37	35	23		
Air voids content (%) ^{f, h}	CT 367		4 ± 2	4 ± 2	Specification ± 2		

Percent of crushed particles coarse aggregate (% min.) One fractured face Two fractured faces	CT 205	As necessary and designated in QCP. At least once per project.	90	25	--	CT 125	48 hours	
Fine aggregate (% min) (Passing No. 4 sieve and retained on No. 8 sieve.) One fractured face			75	--	90			
Los Angeles Rattler (% max.) Loss at 100 rev. Loss at 500 rev.	CT 211		12 45	-- 50	12 40			CT 125
Fine aggregate angularity (% min.)	AASHTO T 304, Method A		Report only	Report only	Report only	CT 125		
Flat and elongated particle (% max. by mass @ 5:1)	ASTM D 4791					CT 125		
Voids filled with asphalt (%) ⁱ No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-2		76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	Report only	LP-2		
Voids in mineral aggregate (% min.) ⁱ No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-3		17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0 – 23.0 ^j 18.0 – 23.0 ^j	LP-3		
Dust proportion ⁱ No. 4 and 3/8" gradings 1/2" and 3/4" gradings	LP-4		0.9 – 2.0 0.6 – 1.3	0.9 – 2.0 0.6 – 1.3	Report only	LP-4		
Smoothness	Section 39-1.12		--	12-foot straight-edge, must-grind, and PI ₀	12-foot straight-edge, must-grind, and PI ₀	12-foot straight-edge, must-grind, and PI ₀		--
Asphalt rubber binder viscosity @ 350 °F, centipoises	Section 39-1.02D		--	--	--	1,500 – 4,000		Section 39-1.02D
Crumb rubber modifier	Section 39-1.02D	--	--	--	Section 39-1.02D	Section 39-1.02D	48 hours	

Notes:

^a Determine combined aggregate gradation containing RAP under Laboratory Procedure LP-9.

^b The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."

^c Required for HMA Type A, Type B, and RHMA-G if the total paved thickness is at least 0.15 foot.

^d Determine maximum theoretical density (California Test 309) at the frequency specified for test maximum density under California Test 375, Part 5 D.

^e For adjusting the plant controller at the HMA plant.

^f Report the average of 3 tests from a single split sample.

^g Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ± 5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."

^h Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

ⁱ Report only if the adjustment for asphalt binder content target value is less than ± 0.3 percent from OBC.

^j Voids in mineral aggregate for RHMA-G must be within this range.

- Within the specified reporting time, submit written test results including:

1. Sampling location, quantity, and time
2. Testing results
3. Supporting data and calculations

- If test results for any quality characteristic are beyond the action limits in the QCP, take corrective actions. Document the corrective actions taken in the inspection records under Section 39-4.03E, "Records of Inspection and Testing."

- Stop production, notify the Engineer in writing, take corrective action, and demonstrate compliance with the specifications before resuming production and placement on the State highway if:

1. A lot's composite quality factor, Q_{FC} , or an individual quality factor, Q_{FCi} for $i = 3, 4, \text{ or } 5$, is below 0.90 determined under Section 39-4.03F, "Statistical Evaluation"
2. An individual quality factor, Q_{FCi} for $i = 1 \text{ or } 2$, is below 0.75
3. Quality characteristics for which a quality factor, Q_{FCi} , is not determined has 2 consecutive acceptance or quality control tests not in compliance with the specifications

39-4.03D CHARTS AND RECORDS

- Record sampling and testing results for quality control on forms provided in the "Quality Control Manual for Hot Mix Asphalt Production and Placement," or on forms you submit with the QCP. The QCP must also include form posting locations and submittal times.

- Submit quality control test results using the Department's statistical evaluation program, HMAPay, available at

www.dot.ca.gov/hq/construc/hma/index.htm

39-4.03E RECORDS OF INSPECTION AND TESTING

- During HMA production, submit in writing a daily:

1. HMA Construction Daily Record of Inspection. Also make this record available at the HMA plant and job site each day.
2. HMA Inspection and Testing Summary. Include in the summary:
 - 2.1. Test forms with the testers' signatures and Quality Control Manager's initials.
 - 2.2. Inspection forms with the inspectors' signatures and Quality Control Manager's initials.
 - 2.3. A list and explanation of deviations from the specifications or regular practices.
 - 2.4. A signed statement by the Quality Control Manager that says:

"It is hereby certified that the information contained in this record is accurate, and that information, tests, or calculations documented herein comply with the specifications of the contract and the standards set forth in the testing procedures. Exceptions to this certification are documented as part of this record."

- Retain for inspection the records generated as part of quality control including inspection, sampling, and testing for at least 3 years after final acceptance.

39-4.03F STATISTICAL EVALUATION

General

• Determine a lot's composite quality factor, QF_C , and the individual quality factors, QF_{QC_i} . Perform statistical evaluation calculations to determine these quality factors based on quality control test results for:

1. Aggregate gradation
2. Asphalt binder content
3. Percent of maximum theoretical density

• The Engineer grants a waiver and you must use 1.0 as the individual quality factor for percent of maximum theoretical density, QF_{QC5} , for HMA paved in:

1. Areas where the total paved thickness is less than 0.15 foot
2. Areas where the total paved thickness is less than 0.20 foot and a 3/4-inch grading is specified and used
3. Dig outs
4. Leveling courses
5. Detours not part of the finished roadway prism
6. Areas where, in the opinion of the Engineer, compaction or compaction measurement by conventional methods is impeded

Statistical Evaluation Calculations

• Use the Variability-Unknown / Standard Deviation Method to determine the percentage of a lot not in compliance with the specifications. The number of significant figures used in the calculations must comply with AASHTO R-11, Absolute Method.

• Determine the percentage of work not in compliance with the specification limits for each quality characteristic as follows:

1. Calculate the arithmetic mean (\bar{X}) of the test values

$$\bar{X} = \frac{\sum X}{n}$$

where:

x = individual test values
n = number of test values

2. Calculate the standard deviation

$$s = \sqrt{\frac{n(\sum x^2) - (\sum x)^2}{n(n-1)}}$$

where:

$\sum(x^2)$ = sum of the squares of individual test values
 $(\sum x)^2$ = sum of the individual test values squared
n = number of test values

3. Calculate the upper quality index (Q_u)

$$Q_u = \frac{USL - \bar{X}}{s}$$

where:

USL = target value plus the production tolerance or upper specification limit
s = standard deviation
 \bar{X} = arithmetic mean

4. Calculate the lower quality index (QL);

$$Q_L = \frac{\bar{X} - LSL}{s}$$

where:

LSL = target value minus production tolerance or lower specification limit
s = standard deviation
 \bar{X} = arithmetic mean

5. From the table, Upper Quality Index Q_U or Lower Quality Index Q_L , of this Section 39-4.03F, "Statistical Evaluation", determine P_U ;

where:

P_U = the estimated percentage of work outside the USL.
 $P_U = 0$, when USL is not specified.

6. From the table, Upper Quality Index Q_U or Lower Quality Index Q_L , of this Section 39-4.03F, "Statistical Evaluation," determine P_L ;

where:

P_L = the estimated percentage of work outside the LSL.
 $P_L = 0$, when LSL is not specified.

7. Calculate the total estimated percentage of work outside the USL and LSL, percent defective

$$\text{Percent defective} = P_U + P_L$$

- P_U and P_L are determined from:

P _U or P _L	Upper Quality Index Q _U or Lower Quality Index Q _L												
	Sample Size (n)												
	5	6	7	8	9	10-11	12-14	15-17	18-22	23-29	30-42	43-66	>66
0	1.72	1.88	1.99	2.07	2.13	2.20	2.28	2.34	2.39	2.44	2.48	2.51	2.56
1	1.64	1.75	1.82	1.88	1.91	1.96	2.01	2.04	2.07	2.09	2.12	2.14	2.16
2	1.58	1.66	1.72	1.75	1.78	1.81	1.84	1.87	1.89	1.91	1.93	1.94	1.95
3	1.52	1.59	1.63	1.66	1.68	1.71	1.73	1.75	1.76	1.78	1.79	1.80	1.81
4	1.47	1.52	1.56	1.58	1.60	1.62	1.64	1.65	1.66	1.67	1.68	1.69	1.70
5	1.42	1.47	1.49	1.51	1.52	1.54	1.55	1.56	1.57	1.58	1.59	1.59	1.60
6	1.38	1.41	1.43	1.45	1.46	1.47	1.48	1.49	1.50	1.50	1.51	1.51	1.52
7	1.33	1.36	1.38	1.39	1.40	1.41	1.41	1.42	1.43	1.43	1.44	1.44	1.44
8	1.29	1.31	1.33	1.33	1.34	1.35	1.35	1.36	1.36	1.37	1.37	1.37	1.38
9	1.25	1.27	1.28	1.28	1.29	1.29	1.30	1.30	1.30	1.31	1.31	1.31	1.31
10	1.21	1.23	1.23	1.24	1.24	1.24	1.25	1.25	1.25	1.25	1.25	1.26	1.26
11	1.18	1.18	1.19	1.19	1.19	1.19	1.20	1.20	1.20	1.20	1.20	1.20	1.20
12	1.14	1.14	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
13	1.10	1.10	1.10	1.10	1.10	1.10	1.11	1.11	1.11	1.11	1.11	1.11	1.11
14	1.07	1.07	1.07	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
15	1.03	1.03	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
16	1.00	0.99	0.99	0.99	0.99	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
17	0.97	0.96	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.94	0.94	0.94	0.94
18	0.93	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.90	0.90	0.90	0.90	0.90
19	0.90	0.89	0.88	0.88	0.88	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
20	0.87	0.86	0.85	0.85	0.84	0.84	0.84	0.83	0.83	0.83	0.83	0.83	0.83
21	0.84	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80	0.80	0.80	0.80	0.79
22	0.81	0.79	0.79	0.78	0.78	0.77	0.77	0.77	0.76	0.76	0.76	0.76	0.76
23	0.77	0.76	0.75	0.75	0.74	0.74	0.74	0.73	0.73	0.73	0.73	0.73	0.73
24	0.74	0.73	0.72	0.72	0.71	0.71	0.70	0.70	0.70	0.70	0.70	0.70	0.70
25	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67	0.67	0.67	0.67	0.67	0.66
26	0.68	0.67	0.67	0.65	0.65	0.65	0.64	0.64	0.64	0.64	0.64	0.64	0.63
27	0.65	0.64	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.61	0.61	0.61	0.60
28	0.62	0.61	0.60	0.59	0.59	0.59	0.58	0.58	0.58	0.58	0.58	0.58	0.57
29	0.59	0.58	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55	0.55	0.55	0.54
30	0.56	0.55	0.54	0.54	0.53	0.53	0.52	0.52	0.52	0.52	0.52	0.52	0.52
31	0.53	0.52	0.51	0.51	0.50	0.50	0.50	0.49	0.49	0.49	0.49	0.49	0.49
32	0.50	0.49	0.48	0.48	0.48	0.47	0.47	0.47	0.46	0.46	0.46	0.46	0.46
33	0.47	0.48	0.45	0.45	0.45	0.44	0.44	0.44	0.44	0.43	0.43	0.43	0.43
34	0.45	0.43	0.43	0.42	0.42	0.42	0.41	0.41	0.41	0.41	0.41	0.41	0.40
35	0.42	0.40	0.40	0.39	0.39	0.39	0.38	0.38	0.38	0.38	0.38	0.38	0.38
36	0.39	0.38	0.37	0.37	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
37	0.36	0.35	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.32
38	0.33	0.32	0.32	0.31	0.31	0.31	0.30	0.30	0.30	0.30	0.30	0.30	0.30
39	0.30	0.30	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
40	0.28	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
41	0.25	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
42	0.23	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
43	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
44	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
45	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
46	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
47	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
48	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
49	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1. If the value of Q_U or Q_L does not correspond to a value in the table, use the next lower value.
2. If Q_U or Q_L are negative values, P_U or P_L is equal to 100 minus the table value for P_U or P_L.

Quality Factor Determination

- Determine individual quality factors, QF_{QC_i} , using percent defective = $P_U + P_L$ and:

Quality Factor	Quality Factors												
	Maximum Allowable Percent Defective ($P_U + P_L$)												
	Sample Size (n)												
	5	6	7	8	9	10-11	12-14	15-17	18-22	23-29	30-42	43-66	>66
1.05				0	0	0	0	0	0	0	0	0	0
1.04			0	1	3	5	4	4	4	3	3	3	3
1.03		0	2	4	6	8	7	7	6	5	5	4	4
1.02		1	3	6	9	11	10	9	8	7	7	6	6
1.01	0	2	5	8	11	13	12	11	10	9	8	8	7
1.00	22	20	18	17	16	15	14	13	12	11	10	9	8
0.99	24	22	20	19	18	17	16	15	14	13	11	10	9
0.98	26	24	22	21	20	19	18	16	15	14	13	12	10
0.97	28	26	24	23	22	21	19	18	17	16	14	13	12
0.96	30	28	26	25	24	22	21	19	18	17	16	14	13
0.95	32	29	28	26	25	24	22	21	20	18	17	16	14
0.94	33	31	29	28	27	25	24	22	21	20	18	17	15
0.93	35	33	31	29	28	27	25	24	22	21	20	18	16
0.92	37	34	32	31	30	28	27	25	24	22	21	19	18
0.91	38	36	34	32	31	30	28	26	25	24	22	21	19
0.90	39	37	35	34	33	31	29	28	26	25	23	22	20
0.89	41	38	37	35	34	32	31	29	28	26	25	23	21
0.88	42	40	38	36	35	34	32	30	29	27	26	24	22
0.87	43	41	39	38	37	35	33	32	30	29	27	25	23
0.86	45	42	41	39	38	36	34	33	31	30	28	26	24
0.85	46	44	42	40	39	38	36	34	33	31	29	28	25
0.84	47	45	43	42	40	39	37	35	34	32	30	29	27
0.83	49	46	44	43	42	40	38	36	35	33	31	30	28
0.82	50	47	46	44	43	41	39	38	36	34	33	31	29
0.81	51	49	47	45	44	42	41	39	37	36	34	32	30
0.80	52	50	48	46	45	44	42	40	38	37	35	33	31
0.79	54	51	49	48	46	45	43	41	39	38	36	34	32
0.78	55	52	50	49	48	46	44	42	41	39	37	35	33
0.77	56	54	52	50	49	47	45	43	42	40	38	36	34
0.76	57	55	53	51	50	48	46	44	43	41	39	37	35
0.75	58	56	54	52	51	49	47	46	44	42	40	38	36
Reject	60	57	55	53	52	51	48	47	45	43	41	40	37
	61	58	56	55	53	52	50	48	46	44	43	41	38
	62	59	57	56	54	53	51	49	47	45	44	42	39
	63	61	58	57	55	54	52	50	48	47	45	43	40
	64	62	60	58	57	55	53	51	49	48	46	44	41

Reject Values Greater Than Those Shown Above

Notes:

- To obtain a quality factor when the estimated percent outside specification limits from table, "Upper Quality Index Q_U or Lower Quality Index Q_L ," does not correspond to a value in the table, use the next larger value.

Compute the composite of single quality factors, QF_C , for a lot using:

$$QF_C = \sum_{i=1}^5 w_i QF_{QC_i}$$

where:

QF_C = the composite quality factor for the lot rounded to 2 decimal places.

QF_{QC_i} = the quality factor for the individual quality characteristic.

- w = the weighting factor listed in the table HMA Acceptance – QC / QA.
- i = the quality characteristic index number in the table HMA Acceptance – QC / QA.

39-4.04 ENGINEER'S QUALITY ASSURANCE

39-4.04A GENERAL

- The Engineer assures quality by:
 1. Reviewing mix designs and proposed JMF
 2. Inspecting procedures
 3. Conducting oversight of quality control inspection and records
 4. Verification sampling and testing during production and paving

39-4.04B VERIFICATION SAMPLING AND TESTING

General

- The Engineer samples:
 1. Aggregate to verify gradation
 2. HMA to verify asphalt binder content

Verification

- For aggregate gradation and asphalt binder content, the ratio of verification testing frequency to the minimum quality control testing frequency is 1:5. The Engineer performs at least 3 verification tests per lot.
- Using the t-test, the Engineer compares quality control tests results for aggregate gradation and asphalt binder content with corresponding verification test results. The Engineer uses the average and standard deviation of up to 20 sequential sublots for the comparison. When there are less than 20 sequential sublots, the Engineer uses the maximum number of sequential sublots available. The 21st sublot becomes the 1st sublot (n = 1) in the next lot.
- The t-value for a group of test data is computed as follows:

$$t = \frac{|\bar{X}_c - \bar{X}_v|}{S_p \sqrt{\frac{1}{n_c} + \frac{1}{n_v}}} \quad \text{and} \quad S_p^2 = \frac{S_c^2(n_c - 1) + S_v^2(n_v - 1)}{n_c + n_v - 2}$$

where:

- n_c = Number of quality control tests (2 minimum, 20 maximum).
- n_v = Number of verification tests (minimum of 1 required).
- \bar{X}_c = Mean of quality control tests.
- \bar{X}_v = Mean of verification tests.
- S_p = Pooled standard deviation (When $n_v = 1$, $S_p = S_c$).
- S_c = Standard deviation of quality control tests.
- S_v = Standard deviation of verification tests (when $n_v > 1$).

- The comparison of quality control test results and the verification test results is at a level of significance of $\alpha = 0.025$. The Engineer computes t and compares it to the critical t-value, t_{crit} , from:

Critical T-Value

Degrees of freedom (n_c+n_v-2)	t_{crit} (for $\alpha = 0.025$)	Degrees of freedom (n_c+n_v-2)	t_{crit} (for $\alpha = 0.025$)
1	24.452	18	2.445
2	6.205	19	2.433
3	4.177	20	2.423
4	3.495	21	2.414
5	3.163	22	2.405
6	2.969	23	2.398
7	2.841	24	2.391
8	2.752	25	2.385
9	2.685	26	2.379
10	2.634	27	2.373
11	2.593	28	2.368
12	2.560	29	2.364
13	2.533	30	2.360
14	2.510	40	2.329
15	2.490	60	2.299
16	2.473	120	2.270
17	2.458	∞	2.241

- If the t-value computed is less than or equal to t_{crit} , quality control test results are verified.
- If the t-value computed is greater than t_{crit} and both \bar{X}_v and \bar{X}_c comply with acceptance specifications, the quality control tests are verified. You may continue to produce and place HMA with the following allowable differences:

1. $|\bar{X}_v - \bar{X}_c| \leq 1.0$ percent for any grading
2. $|\bar{X}_v - \bar{X}_c| \leq 0.1$ percent for asphalt binder content

- If the t-value computed is greater than t_{crit} and the $|\bar{X}_v - \bar{X}_c|$ for grading and asphalt binder content are greater than the allowable differences, quality control test results are not verified and:

1. The Engineer notifies you in writing.
2. You and the Engineer must investigate why the difference exist.
3. If the reason for the difference cannot be found and corrected, the Engineer's test results are used for acceptance and pay.

39-4.05 ENGINEER'S ACCEPTANCE

39-4.05A TESTING

- The Engineer samples for acceptance testing and tests for:

HMA Acceptance – QC / QA

Index (i)	Quality Characteristic				Weight -ing Factor (w)	Test Method	HMA Type		
							A	B	RHMA-G
	Aggregate gradation ^a					CT 202	JMF ± Tolerance ^c		
	Sieve	3/4"	1/2"	3/8"					
1	1/2"	X ^b	--	--	0.05				
1	3/8"	--	X	--	0.05				
1	No. 4	--	--	X	0.05				
2	No. 8	X	X	X	0.10				
3	No. 200	X	X	X	0.15				
4	Asphalt binder content (%)				0.30	CT 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.5
5	Percent of maximum theoretical density (%) ^{d,e}				0.40	CT 375	92 – 96	92 – 96	91 – 96
	Sand equivalent (min.) ^f					CT 217	47	42	47
	Stabilometer value (min.) ^{f,g}					CT 366			
	No. 4 and 3/8" gradings						30	30	--
	1/2" and 3/4" gradings						37	35	23
	Air voids content (%) ^{f,h}					CT 367	4 ± 2	4 ± 2	Specification ± 2
	Percent of crushed particles coarse aggregate (% min.)					CT 205			
	One fractured face						90	25	--
	Two fractured faces						70	--	90
	Fine aggregate (% min)								
	(Passing No. 4 sieve and retained on No. 8 sieve.)								
	One fractured face						70	20	70
	HMA moisture content (% max.)					CT 226 or CT 370	1.0	1.0	1.0
	Los Angeles Rattler (% max.)					CT 211			
	Loss at 100 rev.						12	--	12
	Loss at 500 rev.						45	50	45
	Fine aggregate angularity (% min.)					AASHTO T 304, Method A	Report only	Report only	Report only
	Flat and elongated particle (% max. by mass @ 5:1)					ASTM D 4791	Report only	Report only	Report only
	Voids in mineral aggregate (% min.) ⁱ								(Note j)
	No. 4 grading						17.0	17.0	--
	3/8" grading					LP-2	15.0	15.0	--
	1/2" grading						14.0	14.0	18.0 - 23.0
	3/4" grading						13.0	13.0	18.0 - 23.0
	Voids filled with asphalt (%) ⁱ								
	No. 4 grading					LP-3	76.0 - 80.0	76.0 - 80.0	Report only
	3/8" grading						73.0 - 76.0	73.0 - 76.0	
	1/2" grading						65.0 - 75.0	65.0 - 75.0	
	3/4" grading						65.0 - 75.0	65.0 - 75.0	
	Dust proportion ⁱ					LP-4			
	No. 4 and 3/8" gradings						0.9 - 2.0	0.9 - 2.0	Report only
	1/2" and 3/4" gradings						0.6 - 1.3	0.6 - 1.3	

	Smoothness		Section 39-1.12	12-foot straight-edge, must-grind, and PI ₀	12-foot straight-edge, must-grind, and PI ₀	12-foot straight-edge, must-grind, and PI ₀
	Asphalt binder		Various	Section 92	Section 92	Section 92
	Asphalt rubber binder		Various	--	--	Section 92-1.02(C) and Section 39-1.02D
	Asphalt modifier		Various	--	--	Section 39-1.02D
	Crumb rubber modifier		Various	--	--	Section 39-1.02D

Notes:

^a The Engineer determines combined aggregate gradations containing RAP under Laboratory Procedure LP-9.

^b "X" denotes the sieves the Engineer considers for the specified aggregate gradation.

^c The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."

^d The Engineer determines percent of maximum theoretical density if the total paved thickness is at least 0.15 foot under California Test 375 except the Engineer uses:

1. California Test 308, Method A, to determine in-place density of each core instead of using the nuclear gauge in Part 4, "Determining In-Place Density By The Nuclear Density Device."
2. California Test 309 to determine maximum theoretical density instead of calculating test maximum density in Part 5, "Determining Test Maximum Density."

^e The Engineer determines maximum theoretical density (California Test 309) at the frequency specified for Test Maximum Density under California Test 375, Part 5.D.

^f The Engineer reports the average of 3 tests from a single split sample.

^g Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ± 5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."

^h The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

ⁱ Report only if the adjustment for asphalt binder content target value is less than ± 0.3 percent from OBC.

^j Voids in mineral aggregate for RHMA-G must be within this range.

- The Engineer determines the percent of maximum theoretical density from the average density of 3 cores you take from every 750 tons of production or part thereof divided by the maximum theoretical density.

- If the total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot, the Engineer determines the percent of maximum theoretical density from cores taken from the final layer measured the full depth of the total paved HMA thickness.

- The Engineer stops production and terminates a lot if:

1. The lot's composite quality factor, Q_{FC}, or an individual quality factor, Q_{FQC_i} for i = 3, 4, or 5, is below 0.90 determined under Section 39-4.03F, "Statistical Evaluation"
2. An individual quality factor, Q_{FQC_i} for i = 1 or 2, is below 0.75
3. Quality characteristics for which a quality factor, Q_{FQC_i}, is not determined has 2 consecutive acceptance or quality control tests not in compliance with the specifications

- For any single quality characteristic for which a quality factor, Q_{FQC_i}, is not determined, except smoothness, if 2 consecutive acceptance test results do not comply with specifications:

1. Stop production.
2. Take corrective action.

3. In the Engineer's presence, take samples and split each sample into 4 parts. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Engineer tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

39-4.05B STATISTICAL EVALUATION, DETERMINATION OF QUALITY FACTORS AND ACCEPTANCE

Statistical Evaluation and Determination of Quality Factors

• To determine the individual quality factor, QF_{QC_i} , for any quality factor $i = 1$ through 5 or a lot's composite quality factor, QF_C , for acceptance and payment adjustment, the Engineer uses the evaluation specifications under Section 39-4.03F, "Statistical Evaluation," and:

1. Verified quality control test results for aggregate gradation
2. Verified quality control test results for asphalt binder content
3. The Engineer's test results for percent of maximum theoretical density

Lot Acceptance Based on Quality Factors

• The Engineer accepts a lot based on the quality factors determined for aggregate gradation and asphalt binder content, QF_{QC_i} for $i = 1$ through 4, using the total number of verified quality control test result values and the total percent defective ($P_U + P_L$).

• The Engineer accepts a lot based on the quality factor determined for maximum theoretical density, QF_{QC_5} , using the total number of test result values from cores and the total percent defective ($P_U + P_L$).

• The Engineer calculates the quality factor for the lot, QF_C , which is a composite of weighted individual quality factors, QF_{QC_i} , determined for each quality characteristic in the table "HMA Acceptance – QC / QA" in Section 39-4.05A, "Testing."

• The Engineer accepts a lot based on quality factors if:

1. The current composite quality factor, QF_C , is 0.90 or greater
2. Each individual quality factor, QF_{QC_i} for $i = 3, 4,$ and $5,$ is 0.90 or greater
3. Each individual quality factor, QF_{QC_i} for $i = 1$ and $2,$ is 0.75 or greater

• No single quality characteristic test may represent more than the smaller of 750 tons or 1 day's production.

Payment Adjustment

• If a lot is accepted, the Engineer adjusts payment with the following formula:

$$PA = \sum_{i=1}^n HMA CP * w_i * [QF_{QC_i} * (HMATT - WHMATT_i) + WHMATT_i] - (HMA CP * HMATT)$$

where:

$PA =$	Payment adjustment rounded to 2 decimal places.
$HMA CP =$	HMA contract price.
$HMATT =$	HMA total tons represented in the lot.
$WHMATT_i =$	Total tons of waived quality characteristic HMA.
$QF_{QC_i} =$	Running quality factor for the individual quality characteristic. QF_{QC_i} for $i = 1$ through 4 must be from verified Contractor's QC results. QF_{QC_5} must be determined from the Engineer's results on cores taken for percent of maximum theoretical density determination.
$w =$	Weighting factor listed in the HMA acceptance table.
$i =$	Quality characteristic index number in the HMA acceptance table.

• If the payment adjustment is a negative value, the Engineer deducts this amount from payment. If the payment adjustment is a positive value, the Engineer adds this amount to payment.

• The 21st subplot becomes the 1st subplot ($n = 1$) in the next lot. When the 21st sequential subplot becomes the 1st subplot, the previous 20 sequential sublots become a lot for which the Engineer determines a quality factor. The Engineer uses this quality factor to pay for the HMA in the lot. If the next lot consists of less than 8 sublots, these sublots must be added to the previous lot for quality factor determination using 21 to 27 sublots.

39-4.05C DISPUTE RESOLUTION

- For a lot, if you or the Engineer dispute any quality factor, QF_{QC_i} , or verification test result, every subplot in that lot must be retested.
- Referee tests must be performed under the specifications for acceptance testing.
- Any quality factor, QF_{QC_i} , must be determined using the referee tests.
- For any quality factor, QF_{QC_i} , for $i = 1$ through 5, dispute resolution:
 1. If the difference between the quality factors for QF_{QC_i} using the referee test result and the disputed test result is less than or equal to 0.01, the original test result is correct.
 2. If the difference between the quality factor for QF_{QC_i} using the referee test result and the disputed test result is more than 0.01, the quality factor determined from the referee tests supersedes the previously determined quality factor.

39-5 MEASUREMENT AND PAYMENT

39-5.01 MEASUREMENT

- The contract item for HMA is measured by weight. The weight of each HMA mixture designated in the Engineer's Estimate must be the combined mixture weight.
 - If tack coat, asphalt binder, and asphaltic emulsion are paid with separate contract items, their contract items are measured under Section 92, "Asphalts," or Section 94, "Asphaltic Emulsions," as the case may be.
 - If recorded batch weights are printed automatically, the contract item for HMA is measured by using the printed batch weights, provided:
 1. Total aggregate and supplemental fine aggregate weight per batch is printed. If supplemental fine aggregate is weighed cumulatively with the aggregate, the total aggregate batch weight must include the supplemental fine aggregate weight.
 2. Total asphalt binder weight per batch is printed.
 3. Each truckload's zero tolerance weight is printed before weighing the first batch and after weighing the last batch.
 4. Time, date, mix number, load number and truck identification is correlated with a load slip.
 5. A copy of the recorded batch weights is certified by a licensed weighmaster and submitted to the Engineer.
- The contract item for placing HMA dike is measured by the linear foot along the completed length. The contract item for placing HMA in miscellaneous areas is measured as the in-place compacted area in square yards. In addition to the quantities measured on a linear foot or square yard basis, the HMA for dike and miscellaneous areas are measured by weight.
 - The contract item for shoulder rumble strips is measured by the station along each shoulder on which the rumble strips are constructed without deductions for gaps between indentations.
 - The contract item for geosynthetic pavement interlayer is measured by the square yard for the actual pavement area covered.

39-5.02 PAYMENT

- The contract prices paid per ton for hot mix asphalt as designated in the Engineer's Estimate include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in constructing hot mix asphalt, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.
 - If HMA is specified to comply with Section 39-4, "Quality Control / Quality Assurance," the Engineer adjusts payment under that section.
 - Full compensation for the Quality Control Plan and prepaving conference is included in the contract prices paid per ton for hot mix asphalt as designated in the Engineer's Estimate and no additional compensation will be allowed therefor.
 - Full compensation for performing and submitting mix designs and for Contractor sampling, testing, inspection, testing facilities, and preparation and submittal of results is included in the contract prices paid per ton for HMA as designated in the Engineer's Estimate and no additional compensation will be allowed therefor.
 - Full compensation for reclaimed asphalt pavement is included in the contract prices paid per ton for HMA as designated in the Engineer's Estimate and no additional compensation will be allowed therefor.
 - The contract price paid per ton for hot mix asphalt (leveling) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in hot mix asphalt (leveling), complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.
 - The contract prices paid per station for rumble strips as designated in the Engineer's Estimate include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in

constructing rumble strips, including fog seal coat, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

- The State will pay for HMA dike at the contract price per linear foot for place HMA dike and by the ton for HMA. The contract prices paid per linear foot for place hot mix asphalt dike as designated in the Engineer's Estimate include full compensation for furnishing all labor, tools, equipment, and incidentals, and for doing all the work involved in placing HMA dike, complete in place, including excavation, backfill, and preparation of the area to receive the dike, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

- The State pays for HMA specified to be a miscellaneous area at the contract price per square yard for place hot mix asphalt (miscellaneous area) and per ton for hot mix asphalt. The contract price paid per square yard for place hot mix asphalt (miscellaneous area) includes full compensation for furnishing all labor, tools, equipment, and incidentals, and for doing all the work involved in placing HMA (miscellaneous area) complete in place, including excavation, backfill, and preparation of the area to receive HMA (miscellaneous area), as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

- If the Quality Control / Quality Assurance construction process is specified, HMA placed in dikes and miscellaneous areas is paid for at the contract price per ton for hot mix asphalt under Section 39-4, "Quality Control / Quality Assurance." Section 39-4.05B, "Statistical Evaluation, Determination of Quality Factors and Acceptance," does not apply to HMA placed in dikes and miscellaneous areas.

- If there are no contract items for place hot mix asphalt dike and place hot mix asphalt (miscellaneous area) and the work is specified, full compensation for constructing HMA dikes and HMA (miscellaneous areas) including excavation, backfill, and preparation of the area to receive HMA dike or HMA (miscellaneous area) is included in the contract price paid per ton for the hot mix asphalt designated in the Engineer's Estimate and no separate payment will be made therefor.

- The contract price paid per square yard for geosynthetic pavement interlayer includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing geosynthetic pavement interlayer, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

- The contract price paid per ton for paving asphalt (binder, geosynthetic pavement interlayer) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying paving asphalt (binder, geosynthetic pavement interlayer), complete in place, including spreading sand to cover exposed binder material, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

- Full compensation for small quantities of HMA placed on geosynthetic pavement interlayer to prevent displacement during construction is included in the contract price paid per ton for the HMA being paved over the interlayer and no separate payment will be made therefor.

- The contract price paid per ton for tack coat includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying tack coat, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

- If there is no item for tack coat and the work is specified, full compensation for tack coat is included in the contract price paid per ton for hot mix asphalt as designated in the Engineer's Estimate and no separate payment will be made therefor.

- The Engineer does not adjust payment for increases or decreases in the quantities for tack coat, regardless of the reason for the increase or decrease. Section 4-1.03B, "Increased or Decreased Quantities," does not apply to the items for tack coat.

- Full compensation for performing smoothness testing, submitting written and electronic copies of tests, and performing corrective work including applying fog seal coat is included in the contract price paid per ton for the HMA designated in the Engineer's Estimate and no separate payment will be made therefor.

- Full compensation for spreading sand on RHMA-G, RHMA-O, and RHMA-O-HB surfaces and for sweeping and removing excess sand is included in the contract price paid per ton for rubberized hot mix asphalt as designated in the Engineer's Estimate and no separate payment will be made therefor.

- If the Engineer fails to comply with a specification within a specified time, and if, in the opinion of the Engineer, work completion is delayed because of the failure, the Engineer adjusts payment and contract time under Section 8-1.09, "Right of Way Delays."

- If the dispute resolution ITP determines the Engineer's test results are correct, the Engineer deducts the ITP's testing costs from payments. If the ITP determines your test results are correct, the State pays the ITP's testing costs. If, in the Engineer's opinion, work completion is delayed because of incorrect Engineer test results, the Engineer adjusts payment and contract time under Section 8-1.09, "Right of Way Delays."

SECTION 40: PORTLAND CEMENT CONCRETE PAVEMENT

Issue Date: January 5, 2007

Section 40-1.015, "Cement Content," is deleted.

Section 40-1.05, "Proportioning," of the Standard Specifications is amended to read:

- Aggregate and cementitious material proportioning shall conform to the provisions in Section 90-5, "Proportioning."

The first paragraph in Section 40-1.105, "Exit Ramp Termini," of the Standard Specifications is amended to read:

- Concrete pavement shall be constructed at the ends of exit ramps when required by the plans or the special provisions. Texturing for exit ramp termini shall be by means of heavy brooming in a direction normal to ramp centerline. The hardened surface shall have a coefficient of friction not less than 0.35 as determined by California Test 342. Minimum cementitious material content of concrete in pavement for exit ramp termini shall be 590 pounds per cubic yard.

The first paragraph in Section 40-1.14, "Payment," of the Standard Specifications is amended to read:

- The contract price paid per cubic yard for concrete pavement shall include full compensation for furnishing all labor, materials (including cementitious material in the amount specified), tools, equipment, and incidentals, and for doing all the work involved in constructing the portland cement concrete pavement, complete in place, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

SECTION 41: PAVEMENT SUBSEALING AND JACKING

Issue Date: January 5, 2007

The second paragraph of Section 41-1.02, "Materials," of the Standard Specifications is amended to read:

- Cement for grout shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

The third paragraph of Section 41-1.02, "Materials," of the Standard Specifications is amended to read:

- Fly ash shall conform to the requirements in AASHTO Designation: M 295 for either Class C or for Class F. The brand of fly ash used in the work shall conform to the provisions for approval of admixture brands in Section 90-4.03, "Admixture Approval."

The fifth paragraph of Section 41-1.02, "Materials," of the Standard Specifications is amended to read:

- Chemical admixtures and calcium chloride may be used. Chemical admixtures in the grout mix shall conform to the provisions in Section 90-4, "Admixtures." Calcium chloride shall conform to ASTM Designation: D 98.

SECTION 49: PILING

Issue Date: June 6, 2008

The 4th paragraph of Section 49-1.03, "Determination of Length," of the Standard Specifications is amended to read:

- Modification to the specified installation methods and specified pile tip elevation will not be considered at locations where settlement, tension demands, or lateral load demands control design pile tip elevations or when the plans state that specified pile tip elevation shall not be revised.

The first sentence of the sixth paragraph of Section 49-1.03, "Determination of Length," of the Standard Specifications is amended to read:

- Indicator compression pile load testing shall conform to the requirements in ASTM Designation: D 1143-81.

The first sentence of the seventh paragraph of Section 49-1.03, "Determination of Length," of the Standard Specifications is amended to read:

- Indicator tension pile load testing shall conform to the requirements in ASTM Designation: D 3689-90.

The 9th paragraph of Section 49-1.03, "Determination of Length," of the Standard Specifications is amended to read:

- The Contractor shall furnish piling of sufficient length to obtain the specified tip elevation shown on the plans or specified in the special provisions.

The sixth paragraph in Section 49-1.04, "Load Test Piles," of the Standard Specifications is amended to read:

- The Contractor may use additional cementitious material in the concrete for the load test and anchor piles.

The 1st paragraph of Section 49-6.01, "Measurement," of the Standard Specifications is amended to read:

- The length of timber, steel, and precast prestressed concrete piles, and of cast-in-place concrete piles consisting of driven shells filled with concrete, shall be measured along the longest side, from the tip elevation shown on the plans to the plane of pile cut-off.

Section 49-6.02, "Payment," of the Standard Specifications is amended by adding the following:

- When pile tips are revised by the Engineer for timber, steel, and precast prestressed concrete piles, and for cast-in-place concrete piles consisting of driven shells filled with concrete, the additional length required, including all materials, equipment, and labor for furnishing, splicing, and installing the piling, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work."

- All remedial work required to achieve the required nominal resistance, including suspending driving operations above the required tip elevation and re-driving piles at a later time, when directed by the Engineer, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work."

SECTION 50: PRESTRESSING CONCRETE

Issue Date: April 4, 2008

The 2nd paragraph in Section 50-1.07, "Ducts," of the Standard Specifications is amended to read:

- Ducts shall be fabricated with either welded or interlocked seams. Galvanizing of the welded seam will not be required. Ducts shall have sufficient strength to maintain their correct alignment during placing of concrete. Joints between sections of duct shall be positive metallic connections which do not result in angle changes at the joints. Waterproof tape shall be used at the connections. Ducts shall be bent without crimping or flattening. Transition couplings connecting the ducts to anchoring devices shall be either ferrous metal or polyolefin. Ferrous metal transition couplings need not be galvanized.

The 3rd paragraph in Section 50-1.05, "Prestressing Steel," of the Standard Specifications is amended by deleting item A.

The seventh paragraph in Section 50-1.07, "Ducts," of the Standard Specifications is amended to read:

- All ducts with a total length of 400 feet or more shall be vented. Vents shall be placed at intervals of not more than 400 feet and shall be located within 6 feet of every high point in the duct profile. Vents shall be 1/2 inch minimum diameter standard pipe or suitable plastic pipe. Connections to ducts shall be made with metallic or plastic structural fasteners. Plastic components, if selected, shall not react with the concrete or enhance corrosion of the prestressing steel and shall be free of water soluble chlorides. The vents shall be mortar tight, taped as necessary, and shall provide means for injection of grout through the vents and for sealing the vents. Ends of vents shall be removed one inch below the roadway surface after grouting has been completed.

Item B of the eleventh paragraph in Section 50-1.08, "Prestressing," of the Standard Specifications is amended to read:

- B. When the concrete is designated by class or cementitious material content, either the concrete compressive strength shall have reached the strength shown on the plans at the time of stressing or at least 28 days shall have elapsed since the last concrete to be prestressed has been placed, whichever occurs first.

The second and third paragraphs in Section 50-1.09, "Bonding and Grouting," of the Standard Specifications are amended to read:

- Grout shall consist of cement and water and may contain an admixture if approved by the Engineer.
- Cement shall conform to the provisions in Section 90-2.01A, "Cement."

The first paragraph in Section 50-1.11, "Payment," of the Standard Specifications is amended to read:

- No separate payment will be made for pretensioning precast concrete members. Payment for pretensioning precast concrete members shall be considered as included in the contract price paid for furnish precast members as provided for in Section 51, "Concrete Structures."

SECTION 51: CONCRETE STRUCTURES

Issue Date: May 2, 2008

The first sentence of the eleventh paragraph of Section 51-1.05, "Forms," of the Standard Specifications is amended to read:

- Form panels for exposed surfaces shall be furnished and placed in uniform widths of not less than 3 feet and in uniform lengths of not less than 6 feet, except at the end of continuously formed surfaces where the final panel length required is less than 6 feet.

The first sentence of the eleventh paragraph of Section 51-1.06C, "Removing Falsework," of the Standard Specifications is amended to read:

- Falsework for box culverts and other structures with decks lower than the roadway pavement and with span lengths of 14 feet or less shall not be released until the last placed concrete has attained a compressive strength of 1,600 psi, provided that curing of the concrete is not interrupted.

The 6th paragraph of Section 51-1.11, "Construction Methods," of the Standard Specifications is amended to read:

- Construction methods and equipment employed by the Contractor shall conform to the provisions in Section 7-1.02, "Load Limitations."

The fourth paragraph in Section 51-1.12D, "Sheet Packing, Preformed Pads, and Board Fillers," of the Standard Specifications is amended to read:

- Expanded polystyrene shall be a commercially available polystyrene board. Expanded polystyrene shall have a minimum flexural strength of 35 psi determined in conformance with the requirements in ASTM Designation: C 203 and a compressive yield strength of between 16 and 40 psi at 5 percent compression. Surfaces of expanded polystyrene against which concrete is placed shall be faced with hardboard. Hardboard shall be 1/8 inch minimum thickness, conforming to ANSI A135.4, any class. Other facing materials may be used provided they furnish equivalent protection. Boards shall be held in place by nails, waterproof adhesive, or other means approved by the Engineer.

The 3rd paragraph of Section 51-1.12F, "Sealed Joints," of the Standard Specifications is amended to read:

- Type A and AL joint seals shall consist of a groove in the concrete that is filled with field-mixed silicone sealant.

The table in the 6th paragraph of Section 51-1.12F, "Sealed Joints," of the Standard Specifications is amended to read:

Movement Rating (MR)	Seal Type
MR ≤ 1 inch	Type A or Type B
1 inch < MR ≤ 2 inches	Type B
2 inches < MR ≤ 4 inches	Joint Seal Assembly (Strip Seal)
MR > 4 inches	Joint Seal Assembly (Modular Unit) or Seismic Joint

The 1st paragraph of Section 51-1.12F(3)(a), "Type A and AL Seal, " of the Standard Specifications is amended to read:

- The sealant must consist of a 2-component silicone sealant that will withstand up to ±50 percent movement.

The 2nd paragraph of Section 51-1.12F(3)(a), "Type A and AL Seal," of the Standard Specifications is amended to read:

- Silicone sealants must be tested under California Test 435 and must comply with the following:

Specification	Requirement
Modulus at 150 percent elongation	8-75 psi
Recovery	21/32 inch max.
Notch Test	Notched or loss of bond 1/4 inch, max.
Water Resistance	Notched or loss of bond 1/4 inch, max.
Ultraviolet Exposure ASTM Designation: G 154, Table X2.1, Cycle 2.	No more than slight checking or cracking.
Cone Penetration	4.5-12.0 mm

The 3rd paragraph of Section 51-1.12F(3)(a), "Type A and AL Seal," of the Standard Specifications is deleted.

The 8th paragraph of Section 51-1.12F(3)(a), "Type A and AL Seal," of the Standard Specifications is deleted.

The 10th paragraph of Section 51-1.12F(3)(a), "Type A and AL Seal," of the Standard Specifications is amended to read:

- A Certificate of Compliance accompanied by a certified test report must be furnished for each batch of silicone sealant in conformance with the provisions in Section 6-1.07, "Certificates of Compliance."

The 2nd paragraph of Section 51-1.12F(3)(b), "Type B Seal," of the Standard Specifications is amended to read:

- The preformed elastomeric joint seal must conform to the requirements in ASTM D 2628 and the following:
 1. The seal must consist of a multichannel, nonporous, homogeneous material furnished in a finished extruded form.
 2. The minimum depth of the seal measured at the contact surface must be at least 95 percent of the minimum uncompressed width of the seal as designated by the manufacturer.
 3. When tested in conformance with the requirements in California Test 673 for Type B seals, joint seals must provide a movement rating (MR) of not less than that shown on the plans.
 4. The top and bottom edges of the joint seal must maintain continuous contact with the sides of the groove over the entire range of joint movement.
 5. The seal must be furnished full length for each joint with no more than 1 shop splice in any 60-foot length of seal.
 6. The Contractor must demonstrate the adequacy of the procedures to be used in the work before installing seals in the joints.
 7. One field splice per joint may be made at locations and by methods approved by the Engineer. The seals are to be manufactured full length for the intended joint, then cut at the approved splice section and rematched before splicing. The Contractor must submit splicing details prepared by the joint seal manufacturer for approval before beginning splicing work.
 8. Shop splices and field splices must have no visible offset of exterior surfaces and must show no evidence of bond failure.

9. At all open ends of the seal that would admit water or debris, each cell must be filled to a depth of 3 inches with commercial quality open cell polyurethane foam or closed by other means subject to approval by the Engineer.

The 7th paragraph of Section 51-1.12F(3)(b), "Type B Seal," of the Standard Specifications is amended to read:

- The joint seal must be installed full length for each joint with equipment that does not twist or distort the seal, elongate the seal longitudinally, or otherwise cause damage to the seal or to the concrete forming the groove.

The first sentence of the eleventh paragraph of Section 51-1.12F(3)(b), "Type B Seal," of the Standard Specifications is amended to read:

- Samples of the prefabricated joint seals, not less than 3 feet in length, will be taken by the Engineer from each lot of material.

The fourth and fifth sentences of the sixth paragraph of Section 51-1.12H(1), "Plain and Fabric Reinforced Elastomeric Bearing Pads," of the Standard Specifications are amended to read:

- Each ply of fabric shall have a breaking strength of not less than 800 pounds per inch of width in each thread direction when 3" x 36" samples are tested on split drum grips. The bond between double plies shall have a minimum peel strength of 20 pounds per inch.

The hardness (Type A) requirement in the table in the eighth paragraph of Section 51-1.12H(1), "Plain and Fabric Reinforced Elastomeric Bearing Pads," of the Standard Specifications is amended to read:

Hardness (Type A)	D 2240 with 2kg mass.	55 ±5
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The first sentence of subparagraph A of the first paragraph of Section 51-1.12H(2), "Steel Reinforced Elastomeric Bearings," of the Standard Specifications is amended to read:

- The bearings shall consist of alternating steel laminates and internal elastomer laminates with top and bottom elastomer covers. Steel laminates shall have a nominal thickness of 0.075 inch (14 gage).

The first paragraph in Section 51-1.135, "Mortar," of the Standard Specifications is amended to read:

- Mortar shall be composed of cementitious material, sand, and water proportioned and mixed as specified in this Section 51-1.135.

The third paragraph in Section 51-1.135, "Mortar," of the Standard Specifications is amended to read:

- The proportion of cementitious material to sand, measured by volume, shall be one to 2 unless otherwise specified.

The third sentence of the fourth paragraph of Section 51-1.17, "Finishing Bridge Decks," of the Standard Specifications is amended to read:

- The surfaces shall have a profile trace showing no high points in excess of 0.25 inch, and the portions of the surfaces within the traveled way shall have a profile count of 5 or less in any 100-foot section.

Section 51-1.17, "Finishing Bridge Decks," of the Standard Specifications is amended by adding the following subsection:

51-1.17A DECK CRACK TREATMENT

- The Contractor shall use all means necessary to minimize the development of shrinkage cracks.
- The Contractor shall remove all equipment and materials from the deck and clean the surface as necessary for the Engineer to measure the surface crack intensity. Surface crack intensity will be determined by the Engineer after completion of concrete cure, before prestressing, and before the release of falsework. In any 500 square foot portion of deck within the limits of the new concrete deck, should the intensity of cracking be such that there are more than 16 feet of cracks whose width at any location exceeds 0.02 inch, the deck shall be treated with methacrylate resin. The area of deck to be treated shall

have a width that extends for the entire width of new deck inside the concrete barriers and a length that extends at least 5 feet beyond the furthest single continuous crack outside the 500 square foot portion, measured from where that crack exceeds 0.02 inch in width, as determined by the Engineer.

- Deck crack treatment shall include furnishing, testing, and application of methacrylate resin and sand. If grinding is required, deck treatment shall take place before grinding.

51-1.17A(1) Submittals

- Before starting deck treatment, the Contractor shall submit plans in conformance with Section 5-1.02, "Plans and Working Drawings," for the following:

1. Public safety plan for the use of methacrylate resin
2. Placement plan for the construction operation

- The plans shall identify materials, equipment, and methods to be used.
- The public safety plan for the use of methacrylate resin shall include details for the following:

1. Shipping
2. Storage
3. Handling
4. Disposal of residual methacrylate resin and the containers

- The placement plan for construction shall include the following:

1. Schedule of deck treatment for each bridge. The schedule shall be consistent with "Maintaining Traffic" of the special provisions and shall include time for the Engineer to perform California Test 342.
2. Methods and materials to be used, including the following:

- 2.1. Description of equipment for applying the resin
- 2.2. Description of equipment for applying the sand
- 2.3. Gel time range and final cure time for the resin

- If the measures proposed in the safety plan are inadequate to provide for public safety associated with the use of methacrylate resin, the Engineer will reject the plan and direct the Contractor to revise the plan. Directions for revisions will be in writing and include detailed comments. The Engineer will notify the Contractor of the approval or rejection of a submitted or revised plan within 15 days of receipt of that plan.

- In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays."

51-1.17A(2) Materials

- Before using methacrylate resin, a Material Safety Data Sheet shall be submitted for each shipment of resin.
- Methacrylate resin shall be low odor and have a high molecular weight. Before adding initiator, the resin shall have a maximum volatile content of 30 percent when tested in conformance with the requirements in ASTM Designation: D 2369, and shall conform to the following:

PROPERTY	REQUIREMENT	TEST METHOD
* Viscosity	25 cP, maximum, (Brookfield RVT with UL adaptor, 50 RPM at 77°F)	ASTM D 2196
* Specific Gravity	0.90 minimum, at 77°F	ASTM D 1475
* Flash Point	180°F, minimum	ASTM D 3278
* Vapor Pressure	1.0 mm Hg, maximum, at 77°F	ASTM D 323
Tack-free Time	400 minutes, maximum at 25°C	Specimen prepared per California Test 551
PCC Saturated Surface-Dry Bond Strength	3.5 MPa, minimum at 24 hours and 21±1°C	California Test 551
* Test shall be performed before adding initiator.		

51-1.17A(3) Testing

- The Contractor shall allow 20 days for sampling and testing by the Engineer of the methacrylate resin before proposed use. If bulk resin is to be used, the Contractor shall notify the Engineer in writing at least 15 days before the delivery of the bulk resin to the job site. Bulk resin is any resin stored in containers in excess of 55 gallons.
- Before starting production treatment, the Contractor shall treat a test area of approximately 500 square feet that is within the project limits and at a location approved by the Engineer. When available the test area shall be outside of the traveled way. Weather and pavement conditions during the test treatment shall be similar to those expected on the deck. Equipment used for testing shall be similar to those used for deck treating operations.
- During test and production deck treatment, test tiles shall be used to evaluate the resin cure time. The Contractor shall coat at least one 4" x 4" commercial quality smooth glazed tile for each batch of methacrylate resin. The coated tile shall be placed adjacent to the corresponding treated area. Sand shall not be applied to the test tiles.
 - The acceptance criteria for a treated area is as follows:
 1. The test tiles are dry to the touch.
 2. The treated deck surface is tack free (non-oily).
 3. The sand cover adheres and resists brushing by hand.
 4. Excess sand has been removed by vacuuming or sweeping.
 5. The coefficient of friction is at least 0.35 when tested in conformance with California Test 342.
- Deck treatment on the test area shall demonstrate that the methods and materials meet the acceptance criteria and that the production work will be completed within the specified time for maintaining traffic.
- If a test or production area fails to meet the acceptance criteria, as determined by the Engineer, the treatment will be rejected, and the treatment shall be removed and replaced until the area complies with the acceptance criteria.

51-1.17A(4) Construction

- Equipment shall be fitted with suitable traps, filters, drip pans, or other devices as necessary to prevent oil or other deleterious material from being deposited on the deck.
- Before deck treatment with methacrylate resin, the bridge deck surface shall be cleaned by abrasive blasting, and all loose material shall be blown from visible cracks using high-pressure air. Concrete curing seals shall be cleaned from the deck surface to be treated, and the deck shall be dry when blast cleaning is performed. If the deck surface becomes contaminated at any time before placing the resin, the deck surface shall be cleaned by abrasive blasting.
- Where abrasive blasting is being performed within 10 feet of a lane occupied by public traffic, the residue including dust shall be removed immediately after contact between the abrasive and the surface being treated. The removal shall be by a vacuum attachment operating concurrently with the abrasive blasting operation.
- A compatible promoter/initiator system shall be capable of providing the resin gel time range shown on the placement plan. Gel time shall be adjusted to compensate for the changes in temperature throughout treatment application.

- Resin shall be applied by machine and by using a two-part resin system with a promoted resin for one part and an initiated resin for the other part. This two-part resin system shall be combined at equal volumes to the spray bars through separate positive displacement pumps. Combining of the 2 components shall be by either static in-line mixers or by external intersecting spray fans. The pump pressure at the spray bars shall not be great enough to cause appreciable atomization of the resin. Compressed air shall not be used to produce the spray. A shroud shall be used to enclose the spray bar apparatus.

- At the Contractor's option, manual application may be used. For manual application, (1) the quantity of resin mixed with promoter and initiator shall be limited to 5 gallons at a time, and (2) the resin shall be distributed by squeegees and brooms within 10 minutes after application.

- The Contractor shall apply methacrylate resin only to the specified area. Barriers, railing, joints, and drainage facilities shall be adequately protected to prevent contamination by the treatment material. Contaminated items shall be repaired at the Contractor's expense.

- The relative humidity shall be less than 90 percent at the time of treatment. The prepared area shall be dry and the surface temperature shall be at least 50°F and not more than 100°F when the resin is applied. The rate of application of promoted/initiated resin shall be approximately 90 square feet per gallon; the exact rate shall be determined by the Engineer.

- The deck surfaces to be treated shall be completely covered with resin so the resin penetrates and fills all cracks. The resin shall be applied within 5 minutes after complete mixing. A significant increase in viscosity shall be cause for rejection. Excess material shall be redistributed by squeegees or brooms within 10 minutes after application. For textured deck surfaces, including grooved surfaces, excess material shall be removed from the texture indentations.

- After the resin has been applied, at least 20 minutes shall elapse before applying sand. The sand shall be commercial quality dry blast sand. At least 95 percent of the sand shall pass the No. 8 sieve and at least 95 percent shall be retained on the No. 20 sieve. The sand shall be applied at a rate of approximately 2 pounds per square yard or until refusal as determined by the Engineer.

- Traffic will not be allowed on treated areas until the acceptance criteria has been met as determined by the Engineer.

The second paragraph in Section 51-1.18C, "Class 2 Surface Finish (Gun Finish)," of the Standard Specifications is amended to read:

- When Class 2 surface finish (gun finish) is specified, ordinary surface finish shall first be completed. The concrete surfaces shall then be abrasive blasted to a rough texture and thoroughly washed down with water. While the washed surfaces are damp, but not wet, a finish coating of machine applied mortar, approximately 1/4 inch thick, shall be applied in not less than 2 passes. The coating shall be pneumatically applied and shall consist of either (1) sand, cementitious material, and water mechanically mixed prior to its introduction to the nozzle, or (2) premixed sand and cementitious material to which water is added prior to its expulsion from the nozzle. The use of admixtures shall be subject to the approval of the Engineer as provided in Section 90, "Portland Cement Concrete." Unless otherwise specified, supplementary cementitious materials will not be required. The proportion of cementitious material to sand shall be not less than one to 4, unless otherwise directed by the Engineer. Sand shall be of a grading suitable for the purpose intended. The machines shall be operated and the coating shall be applied in conformance with standard practice. The coating shall be firmly bonded to the concrete surfaces on which it is applied.

The fifth paragraph in Section 51-1.18C, "Class 2 Surface Finish (Gun Finish)," of the Standard Specifications is amended to read:

- When surfaces to be finished are in pedestrian undercrossings, the sand shall be silica sand and the cementitious material shall be standard white portland cement.

Section 51-1.23, "Payment," of the Standard Specifications is amended by adding the following:

- Full compensation for deck crack treatment, including execution of the public safety plan, shall be considered as included in the contract price paid per cubic yard for structural concrete, bridge, and no additional compensation will be allowed therefor.

SECTION 52: REINFORCEMENT

Issue Date: December 7, 2007

The table in the eleventh paragraph of Section 52-1.07, "Placing," of the Standard Specifications is amended to read:

Height Zone (H) (Feet above ground)	Wind Pressure Value (psf)
H ≤ 30	20
30 < H ≤ 50	25
50 < H ≤ 100	30
H > 100	35

The table in the second paragraph of Section 52-1.08B(1), "Mechanical Splices," of the Standard Specifications is amended to read:

Reinforcing Bar Number	Total Slip
4	0.010-inch
5	0.010-inch
6	0.010-inch
7	0.014-inch
8	0.014-inch
9	0.014-inch
10	0.018-inch
11	0.018-inch
14	0.024-inch
18	0.030-inch

The subparagraph under the sixth paragraph of Section 52-1.08B(2), "Butt Welded Splices," of the Standard Specifications is amended to read:

- The minimum preheat and interpass temperatures shall be 400° F for Grade 40 bars and 600° F for Grade 60 bars. Immediately after completing the welding, at least 6 inches of the bar on each side of the splice shall be covered by an insulated wrapping to control the rate of cooling. The insulated wrapping shall remain in place until the bar has cooled below 200° F.

Item A of the 3rd paragraph of Section 52-1.08C, "Service Splice and Ultimate Butt Splice Testing Requirements," of the Standard Specifications is amended to read:

- A. Proper facilities, including a calibrated tensile testing machine capable of breaking the largest size of reinforcing bar to be tested.

The 5th paragraph of Section 52-1.08C, "Service Splice and Ultimate Butt Splice Testing Requirements," of the Standard Specifications is amended to read:

- Prequalification and production sample splices and testing shall conform to California Test 670 and these specifications.

The 6th paragraph of Section 52-1.08C, "Service Splice and Ultimate Butt Splice Testing Requirements," of the Standard Specifications is deleted.

The 5th paragraph of Section 52-1.08C(2)(a), "Production Test Requirements for Service Splices," of the Standard Specifications is amended to read:

- If 3 or more sample splices from a production test conform to the provisions in this Section 52-1.08C(2), "Service Splice Test Criteria," all splices in the lot represented by this production test will be considered acceptable.

The 2nd paragraph of Section 52-1.08C(3), "Ultimate Butt Splice Test Criteria," of the Standard Specifications is amended to read:

- A minimum of 1 control bar shall be removed from the same bar as, and adjacent to, all ultimate prequalification, production, and quality assurance sample splices. The lengths of control bars shall conform to the lengths specified for

sample splices in California Test 670. The portion of adjacent bar remaining in the work shall also be identified with weatherproof markings that correspond to its adjacent control bar.

The 2nd sentence of the 6th paragraph of Section 52-1.08C(3), "Ultimate Butt Splice Test Criteria," of the Standard Specifications is amended to read:

- In addition, necking of the bar, as defined in California Test 670, shall occur at rupture regardless of whether the bar breaks inside or outside the affected zone.

SECTION 53: SHOTCRETE

Issue Date: November 2, 2007

The third paragraph in Section 53-1.01, "Description," of the Standard Specifications is amended to read:

- The dry-mix process shall consist of delivering dry mixed aggregate and cementitious material pneumatically or mechanically to the nozzle body and adding water and mixing the materials in the nozzle body. The wet-mix process shall consist of delivering mixed aggregate, cement, and water pneumatically to the nozzle and adding any admixture at the nozzle.

The first through fourth paragraphs in Section 53-1.02, "Materials," of the Standard Specifications is amended to read:

- Cementitious material, fine aggregate, and mixing water shall conform to the provisions in Section 90, "Portland Cement Concrete."
- Shotcrete to be mixed and applied by the dry-mix process shall consist of one part cementitious material to not more than 4.5 parts fine aggregate, thoroughly mixed in a dry state before being charged into the machine. Measurement may be either by volume or by weight. The fine aggregate shall contain not more than 6 percent moisture by weight.
- Shotcrete to be mixed and applied by the wet-mix process shall consist of cementitious material, fine aggregate, and water and shall contain not less than 632 pounds of cementitious material per cubic yard. A maximum of 30 percent pea gravel may be substituted for fine aggregate. The maximum size of pea gravel shall be such that 100 percent passes the 1/2 inch screen and at least 90 percent passes the 3/8 inch screen.
- Admixtures may be added to shotcrete and shall conform to the provisions in Section 90-4, "Admixtures."

Item C of the third paragraph in Section 53-1.04, "Placing Shotcrete," of the Standard Specifications is amended to read:

- C. Aggregate and cementitious material that have been mixed for more than 45 minutes shall not be used unless otherwise permitted by the Engineer.

Section 53-1.07, "Measurement," of the Standard Specifications is amended to read:

- Quantities of shotcrete will be measured by the cubic yard computed from measurements, along the slope, of actual areas placed and the theoretical thickness shown on the plans. The Department does not pay for shotcrete placed outside the dimensions shown on the plans or to fill low foundation.

Section 53-1.08, "Payment," of the Standard Specifications is amended to read:

- The contract price paid per cubic yard for shotcrete shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing shotcrete, including preparing the foundation, wire reinforcement, structure backfill, joint filling material, and if required by the plans, drains with sacked pervious backfill material, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

SECTION 55: STEEL STRUCTURES

Issue Date: May 2, 2008

The 3rd paragraph of Section 55-1.05, "Falsework," of the Standard Specifications is amended to read:

- Construction methods and equipment employed by the Contractor shall conform to the provisions in Section 7-1.02, "Load Limitations."

The CVN impact value for Grade HPS 50W in the table in the fifth paragraph of Section 55-2.01, "Description," of the Standard Specifications is amended to read:

Grade HPS 50W* (4 inches and under in thickness)	20 at 10° F
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The first paragraph in Section 55-3.05, "Flatness of Faying and Bearing Surfaces," of the Standard Specifications is amended to read:

- Surfaces of bearing and base plates and other metal surfaces that are to come in contact with each other or with ground concrete surfaces or with asbestos sheet packing shall be flat to within 1/32-inch tolerance in 12 inches and to within 1/16-inch tolerance overall. Surfaces of bearing and base plates and other metal bearing surfaces that are to come in contact with preformed fabric pads, elastomeric bearing pads, or mortar shall be flat to within 1/8-inch tolerance in 12 inches and to within 3/16-inch tolerance overall.

Item B of the first paragraph of Section 55-3.10, "Fastener Threads," of the Standard Specifications is amended to read:

B. Internal threads shall conform to the requirements in ASTM Designation: A 563.

The third paragraph in Section 55-3.19, "Bearings and Anchorages," of the Standard Specifications is amended to read:

- Immediately before setting bearing assemblies or masonry plates directly on ground concrete surfaces, the Contractor shall thoroughly clean the surfaces of the concrete and the metal to be in contact and shall apply a coating of nonsag polysulfide or polyurethane caulking conforming to the requirements in ASTM Designation: C 920 to contact areas to provide full bedding.

The fifth paragraph in Section 55-3.19, "Bearings and Anchorages," of the Standard Specifications is amended to read:

- Mortar to be placed below masonry plates or bearing plates of the bearing assemblies and in anchor bolt sleeves or canisters shall conform to the provisions in Section 51-1.135, "Mortar," except that the proportion of cementitious material to sand shall be 1:3.

Item D of the first paragraph of Section 55-4.01, "Measurement," of the Standard Specifications is amended to read:

- D. To determine the pay quantities of galvanized metal, the weight to be added to the calculated weight of the base metal for the galvanizing will be determined from the table of weights of zinc coatings specified in ASTM Designation: A 153/A 153M.

SECTION 56: SIGNS

Issue Date: March 16, 2007

The fifth paragraph in Section 56-1.03, "Fabrication," of the Standard Specifications is amended to read:

- Clips, eyes, or removable brackets shall be affixed to all signs and all posts and shall be used to secure the sign during shipping and for lifting and moving during erection as necessary to prevent damage to the finished galvanized or painted surfaces. Brackets on tubular sign structures shall be removed after erection. Details of the devices shall be shown on the working drawings.

The fourth paragraph of Section 56-1.10, "Payment," of the Standard Specifications is amended to read:

- The contract price paid per pound for install sign structure of the type or types designated in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing sign structures, complete in place, including installing anchor bolt assemblies, removable sign panel

frames, and sign panels and performing any welding, painting or galvanizing required during installation, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The fourth paragraph in Section 56-2.03, "Construction," of the Standard Specifications is amended to read:

- Backfill material for metal posts shall consist of minor concrete conforming to the provisions in Section 90-10, "Minor Concrete," and shall contain not less than 463 pounds of cementitious material per cubic yard.

SECTION 59: PAINTING

Issue Date: May 1, 2006

The third paragraph of Section 59-2.12, "Painting," of the Standard Specifications is amended to read:

- Contact surfaces of stiffeners, railings, built up members or open seam exceeding 6 mils in width that would retain moisture, shall be caulked with polysulfide or polyurethane sealing compound conforming to the requirements in ASTM Designation: C 920, Type S, Grade NS, Class 25, Use O, or other approved material.

The fourth paragraph of Section 59-2.12, "Painting," of the Standard Specifications is amended to read:

- The dry film thickness of the paint will be measured in place with a calibrated Type 2 magnetic film thickness gage in conformance with the requirements in SSPC-PA 2, "Measurement of Dry Coating Thickness with Magnetic Gages," of the "SSPC: The Society for Protective Coatings," except that there shall be no limit to the number or location of spot measurements to verify compliance with specified thickness requirements.

SECTION 64: PLASTIC PIPE

Issue Date: July 31, 2007

The first paragraph of Section 64-1.06, "Concrete Backfill," of the Standard Specifications is amended to read:

- At locations where pipe is to be backfilled with concrete as shown on the plans, the concrete backfill shall be constructed of minor concrete or Class 4 concrete conforming to the provisions in Section 90, "Portland Cement Concrete." Minor concrete shall contain not less than 380 pounds of cementitious material per cubic yard. The concrete to be used will be designated in the contract item or shown on the plans.

The third paragraph of Section 64-1.06, "Concrete Backfill," of the Standard Specifications is amended to read:

- The surface of the concrete backfill shall be broomed with a heavy broom to produce a uniform rough surface if hot mix asphalt is to be placed directly thereon.

SECTION 65: REINFORCED CONCRETE PIPE

Issue Date: July 31, 2007

The first paragraph of Section 65-1.02, "Materials," of the Standard Specifications is amended to read:

- Cementitious material and aggregate shall conform to the provisions in Section 90-2, "Materials" except that mortar strengths relative to Ottawa sand and grading requirements shall not apply to the aggregate. Use of supplemental cementitious material shall conform to AASHTO Designation: M 170.

Subparagraph "c" of the eleventh paragraph of Section 65-1.02A(1) "Circular Reinforced Concrete Pipe (Designated or Selected by Class)," of the Standard Specifications is amended to read:

- c. Cementitious material and aggregate for non-reinforced concrete pipe shall conform to the provisions in Section 65-1.02, "Materials."

The first paragraph of Section 65-1.035, "Concrete Backfill," of the Standard Specifications is amended to read:

- At locations where pipe is to be backfilled with concrete as shown on the plans, the concrete backfill shall be constructed of minor concrete or Class 4 concrete in conformance with the provisions in Section 90, "Portland Cement Concrete." Minor concrete shall contain not less than 380 pounds of cementitious material per cubic yard. The concrete to be used will be designated in the contract item.

The third paragraph of Section 65-1.035, "Concrete Backfill," of the Standard Specifications is amended to read:

- The surface of the concrete backfill shall be broomed with a heavy broom to produce a uniform rough surface if hot mix asphalt is to be placed directly thereon.

The first subparagraph of the second paragraph of Section 65-1.06, "Joints," of the Standard Specifications is amended to read:

- Cement Mortar.- Mortar shall be composed of one part cementitious material and 2 parts sand by volume. Supplementary cementitious material will not be required.

SECTION 66: CORRUGATED METAL PIPE

Issue Date: July 31, 2007

The first paragraph of Section 66-1.045, "Concrete Backfill," of the Standard Specifications is amended to read:

- At locations where pipe is to be backfilled with concrete as shown on the plans, the concrete backfill shall be constructed of minor concrete or Class 4 concrete conforming to the provisions in Section 90, "Portland Cement Concrete." Minor concrete shall contain not less than 380 pounds of cementitious material per cubic yard. The concrete to be used will be designated in the contract item or shown on the plans.

The third paragraph of Section 66-1.045, "Concrete Backfill," of the Standard Specifications is amended to read:

- The surface of the concrete backfill shall be broomed with a heavy broom to produce a uniform rough surface if hot mix asphalt is to be placed directly thereon.

SECTION 68: SUBSURFACE DRAINS

Issue Date: July 31, 2007

The first and second paragraphs of Section 68-3.02D, "Miscellaneous," of the Standard Specifications are amended to read:

- Concrete for splash pads shall be produced from minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.
- Mortar placed where edge drain outlets and vents connect to drainage pipe and existing drainage inlets shall conform to the provisions in Section 51-1.135, "Mortar."

The thirteenth paragraph of Section 68-3.03, "Installation," of the Standard Specifications is amended to read:

- Cement treated permeable material, which is not covered with hot mix asphalt within 12 hours after compaction of the permeable material, shall be cured by either sprinkling the material with a fine spray of water every 4 hours during daylight hours or covering the material with a white polyethylene sheet, not less than 6 mils thick. The above curing requirements shall begin at 7:00 a.m. on the morning following compaction of the cement treated permeable material and continue for the next 72 hours or until the material is covered with hot mix asphalt, whichever is less. The cement treated permeable material shall not be sprayed with water during the first 12 hours after compacting, but may be covered with the polyethylene sheet during the first 12 hours or prior to the beginning of the cure period.

The seventeenth and eighteenth paragraphs of Section 68-3.03, "Installation," of the Standard Specifications are amended to read:

- Hot mix asphalt for backfilling trenches in existing paved areas shall be produced from commercial quality aggregates and asphalt and mixed at a central mixing plant. The aggregate shall conform to the 3/4 inch grading, or the 1/2 inch grading for Type A and Type B hot mix asphalt specified in Section 39-1.02E, "Aggregate." The amount of asphalt binder to be mixed with the aggregate shall be between 4 percent and 7 percent by weight of the dry aggregate, as determined by the Engineer.

- Hot mix asphalt backfill shall be spread and compacted in approximately 2 equal layers by methods that will produce a hot mix asphalt surfacing of uniform smoothness, texture and density. Each layer shall be compacted before the temperature of the mixture drops below 250° F. Prior to placing the hot mix asphalt backfill, a tack coat of asphaltic emulsion conforming to the provisions in Section 94, "Asphaltic Emulsions," shall be applied to the vertical edges of existing pavement at an approximate rate of 0.05-gallon per square yard.

The twentieth paragraph of Section 68-3.03, "Installation," of the Standard Specifications is amended to read:

- Type A pavement markers conforming to the details shown on the plans and the provisions in Section 85, "Pavement Markers," shall be placed on paved shoulders or dikes at outlet, vent and cleanout locations as directed by the Engineer. The waiting period for placing pavement markers on new hot mix asphalt surfacing will not apply.

Section 68-3.05, "Payment," of the Standard Specifications is amended to read:

- The contract price paid per linear foot for plastic pipe (edge drain) of the size or sizes shown in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing edge drains complete in place, including excavation (and removal of any concrete deposits that may occur along the lower edge of the concrete pavement in Type 1 installations) and hot mix asphalt backfill for Type 1 edge drain installation, tack coat, filter fabric, and treated permeable material, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

- The contract price paid per linear foot for plastic pipe (edge drain outlet) of the size or sizes shown in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing edge drain outlets, vents and cleanouts complete in place, including outlet and vent covers, expansion plugs, pavement markers, concrete splash pads, connecting outlets and vents to drainage facilities, and excavation and backfill [aggregate base, hot mix asphalt, tack coat, and native material] for outlets, vents, and cleanouts to be installed in embankments and existing shoulders, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

SECTION 69: OVERSIDE DRAINS

Issue Date: July 31, 2007

The first paragraph of Section 69-1.01, "Description," of the Standard Specifications is amended to read:

- This work shall consist of furnishing and installing entrance tapers, pipe downdrains, tapered inlets, flume downdrains, anchor assemblies, reducers, slip joints and hot mix asphalt overside drains to collect and carry surface drainage down the roadway slopes as shown on the plans or as directed by the Engineer and as specified in these specifications and the special provisions.

Section 69-1.02D, "Asphalt Concrete," of the Standard Specifications is amended to read:

69-1.02D Hot Mix Asphalt

- Hot mix asphalt for overside drains shall conform to the provisions in Section 39-1.13, "Miscellaneous Areas."

Section 69-1.04, "Asphalt Concrete Overside Drains," is amended to read:

69-1.04 HOT MIX ASPHALT OVERSIDE DRAINS

- Hot mix asphalt overside drains shall be constructed as shown on the plans or as directed by the Engineer. The hot mix asphalt shall be placed in conformance with the provisions in Section 39-1.13, "Miscellaneous Areas."

The second paragraph of Section 69-1.06, "Payment," of the Standard Specifications is amended to read:

- Quantities of hot mix asphalt placed for overside drains will be paid for as provided in Section 39-5, "Measurement and Payment," for hot mix asphalt placed in miscellaneous areas.

SECTION 70: MISCELLANEOUS FACILITIES

Issue Date: January 5, 2007

The second paragraph of Section 70-1.02C, "Flared End Sections," of the Standard Specifications is amended to read:

- Precast concrete flared end sections shall conform to the requirements for Class III Reinforced Concrete Pipe in AASHTO Designation: M 170M. Cementitious materials and aggregate shall conform to the provisions in Section 90-2, "Materials," except that mortar strengths relative to Ottawa sand and grading requirements shall not apply to the aggregate. Use of supplementary cementitious material shall conform to the requirements in AASHTO Designation: M 170. The area of steel reinforcement per meter of flared end section shall be at least equal to the minimum steel requirements for circular reinforcement in circular pipe for the internal diameter of the circular portion of the flared end section. The basis of acceptance of the precast concrete flared end section shall conform to the requirements of Section 5.1.2 of AASHTO Designation: M 170.

The first paragraph of Section 70-1.02H, "Precast Concrete Structures," of the Standard Specifications is amended to read:

- Precast concrete pipe risers and pipe reducers, and precast concrete pipe sections, adjustment rings and tapered sections for pipe energy dissipators, pipe inlets and pipe manholes shall conform to the requirements in AASHTO Designation: M 199M/M 199, except that the cementitious material and aggregate shall conform to the provisions in Section 90-2, "Materials," except that mortar strengths relative to Ottawa sand and grading requirements shall not apply to the aggregate. Use of supplementary cementitious material shall conform to the requirements in AASHTO Designation: M 170.

The second paragraph of Section 70-1.03, "Installation," of the Standard Specifications is amended to read:

- Cutoff walls for precast concrete flared end sections shall be constructed of minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

SECTION 73: CONCRETE CURBS AND SIDEWALKS

Issue Date: July 31, 2007

The second subparagraph of the second paragraph of Section 73-1.01, "Description," of the Standard Specifications is amended to read:

2. Minor concrete shall contain not less than 463 pounds of cementitious material per cubic yard except that when extruded or slip-formed curbs are constructed using 3/8-inch maximum size aggregate, minor concrete shall contain not less than 548 pounds of cementitious material per cubic yard.

The fifteenth paragraph of Section 73-1.06, "Sidewalk, Gutter Depression, Island Paving, Curb Ramp (Wheelchair Ramp) and Driveway Construction," of the Standard Specifications is amended to read:

- Where hot mix asphalt or portland cement concrete pavements are to be placed around or adjacent to manholes, pipe inlets or other miscellaneous structures in sidewalk, gutter depression, island paving, curb ramps or driveway areas, the structures shall not be constructed to final grade until after the pavements have been constructed for a reasonable distance on each side of the structures.

SECTION 75: MISCELLANEOUS METAL

Issue Date: January 18, 2008

The 13th paragraph of Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications is amended to read:

- Concrete anchorage devices shall be mechanical expansion or resin capsule types installed in drilled holes or cast-in-place insert types. The anchorage devices shall be selected from the Department's Pre-Qualified Products List at:

http://www.dot.ca.gov/hq/esc/approved_products_list

- The anchorage devices shall be a complete system, including threaded studs, hex nuts, and cut washers. Thread dimensions for externally threaded concrete anchorage devices prior to zinc coating, shall conform to the requirements in ANSI Standard: B1.1 having Class 2A tolerances or ANSI Standard: B1.13M having Grade 6g tolerances. Thread dimensions for internally threaded concrete anchorage devices shall conform to the requirements in ASTM A 563.

The 18th paragraph of Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications is amended to read:

- Mechanical expansion anchors shall, when installed in accordance with the manufacturer's instructions and these specifications and tested in conformance with the requirements in California Test 681, withstand the application of a sustained tension test load of at least the following values for at least 48 hours with a movement not greater than 0.035 inch:

Stud Diameter (inches)	Sustained Tension Test Load (pounds)
*3/4	5,000
5/8	4,100
1/2	3,200
3/8	2,100
1/4	1,000

* Maximum stud diameter permitted for mechanical expansion anchors.

- Resin capsule anchors shall, when installed in accordance with the manufacturer's instructions and these specifications and tested in conformance with the requirements in California Test 681, withstand the application of a sustained tension test load of at least the following values for at least 48 hours with a movement not greater than 0.010 inch:

Stud Diameter (inches)	Sustained Tension Test Load (pounds)
1-1/4	31,000
1	17,900
7/8	14,400
3/4	5,000
5/8	4,100
1/2	3,200
3/8	2,100
1/4	1,000

- At least 25 days before use, the Contractor shall submit one sample of each resin capsule anchor per lot to the Transportation Laboratory for testing. A lot of resin capsule anchors is 100 units, or fraction thereof, of the same brand and product name.

The 20th paragraph of Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications is amended to read:

- The Pre-Qualified Products List for concrete anchorage devices has been developed from data previously furnished by suppliers or manufacturers for each type and size. Approval of additional anchorage device types and sizes is contingent upon the Contractor submitting to the Engineer one sample of each type of concrete anchorage device, manufacturer's installation instructions, and certified results of tests, either by a private testing laboratory or the manufacturer, indicating compliance with the above requirements.

The twenty-fourth paragraph of Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications is amended to read:

- Sealing compound, for caulking and adhesive sealing, shall be a polysulfide or polyurethane material conforming to the requirements in ASTM Designation: C 920, Type S, Grade NS, Class 25, Use O.

The 1st sentence of the 3rd paragraph of Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications is amended to read:

Cables shall be 3/4 inch preformed, 6 x 19, wire strand core or independent wire rope core (IWRC), galvanized in conformance with the requirements in Federal Specification RR-W-410, right regular lay, manufactured of improved plow steel with a minimum breaking strength of 23 tons.

Item C of the fourth paragraph of Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications is amended to read:

- C. Nuts shall conform to the requirements in ASTM Designation: A 563 including Appendix X1, except lubrication is not required.

The twelfth paragraph in Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications is amended to read:

- Concrete for filling cable drum units shall conform to the provisions in Section 90-10, "Minor Concrete," or at the option of the Contractor, may be a mix with 3/8-inch maximum size aggregate and not less than 675 pounds of cementitious material per cubic yard.

The sixth paragraph of Section 75-1.05, "Galvanizing," of the Standard Specifications is amended to read:

- 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 449, A 563, 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.

The eighth paragraph of Section 75-1.05, "Galvanizing," of the Standard Specifications is amended to read:

- 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.

SECTION 80: FENCES

Issue Date: January 5, 2007

The fourth paragraph of Section 80-3.01F, "Miscellaneous," of the Standard Specifications is amended to read:

- Portland cement concrete for metal post and brace footings and for deadmen shall be minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

The fourth paragraph of Section 80-4.01C, "Miscellaneous," of the Standard Specifications is amended to read:

- Portland cement concrete for metal post and for deadmen shall be produced from minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

SECTION 83: RAILINGS AND BARRIERS

Issue Date: August 17, 2007

The seventh paragraph in Section 83-1.02, "Materials and Construction," of the Standard Specifications is amended to read:

- Mortar shall conform to the provisions in Section 51-1.135, "Mortar," and shall consist of one part by volume of cementitious material and 3 parts of clean sand.

The 1st sentence of the 8th subparagraph of the 24th paragraph of Section 83-1.02B, "Metal Beam Guard Railing," of the Standard Specifications is amended to read:

Anchor cable shall be 3/4 inch preformed, 6 x 19, wire strand core or independent wire rope core (IWRC), galvanized in conformance with the requirements in Federal Specification RR-W-410, right regular lay, manufactured of improved plow steel with a minimum breaking strength of 23 tons.

The 2nd sentence of the 6th paragraph of Section 83-1.02E, "Cable Railing," of the Standard Specifications is amended to read:

Cable shall be galvanized in conformance with the requirements in Federal Specification RR-W-410.

The 5th paragraph of Section 83-1.02I, "Chain Link Railing," of the Standard Specifications is amended to read:

Where shown on the plans, cables used in the frame shall be 5/16 inch in diameter, wire rope, with a minimum breaking strength of 5,000 pounds and shall be galvanized in conformance with the requirements in Federal Specification RR-W-410.

The 14th paragraph of Section 83-1.02I, "Chain Link Railing," of the Standard Specifications is amended to read:

Chain link fabric shall be either 11-gage Type I zinc-coated fabric conforming to the requirements in AASHTO M 181 or 11-gage Type IV polyvinyl chloride (PVC) coated fabric conforming to the requirements in Federal Specification RR-F-191/1.

Item b of the first paragraph in Section 83-2.02D(2), "Materials," of the Standard Specifications is amended to read:

b. If the 3/8-inch maximum size aggregate grading is used to construct extruded or slip-formed concrete barriers, the cementitious material content of the minor concrete shall be not less than 675 pounds per cubic yard.

The third paragraph in Section 83-2.02D(2), "Materials," of the Standard Specifications is amended to read:

- The concrete paving between the tops of the 2 walls of concrete barrier (Types 50E, 60E, 60GE, and 60SE) and the optional concrete slab at the base between the 2 walls of concrete barrier (Types 50E, 60E, 60GE, and 60SE) shall be constructed of minor concrete conforming to the provisions of Section 90-10, "Minor Concrete," except that the minor concrete shall contain not less than 505 pounds of cementitious material per cubic yard.

SECTION 85: PAVEMENT MARKERS

Issue Date: July 31, 2007

The sixth paragraph in Section 85-1.06, "Placement," of the Standard Specifications is amended to read:

- Pavement markers shall not be placed on new hot mix asphalt surfacing or seal coat until the surfacing or seal coat has been opened to public traffic for a period of not less than 7 days when hot melt bituminous adhesive is used, and not less than 14 days when epoxy adhesive is used.

The second sentence of the fourteenth paragraph in Section 85-1.06, "Placement," of the Standard Specifications is amended to read:

- Cleaning shall be done by blast cleaning on all surfaces regardless of age or type, except that blast cleaning of clean, new hot mix asphalt and clean, new seal coat surfaces will not be required when hot melt bituminous adhesive is used.

SECTION 86: SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS

Issue Date: July 31, 2007

The first sentence of the first paragraph of Section 86-2.02, "Removing and Replacing Improvements," of the Standard Specifications is amended to read:

- Improvements such as sidewalks, curbs, gutters, portland cement concrete and hot mix asphalt pavement, underlying material, lawns and plants and any other improvements removed, broken or damaged by the Contractor's operations, shall be replaced or reconstructed with the same kind of material as found on the work or with materials of equal quality.

The fourth paragraph in Section 86-2.03, "Foundations," of the Standard Specifications is amended to read:

- After each post, standard, and pedestal on structures is in proper position, mortar shall be placed under the base plate as shown on the plans. The exposed portions shall be formed to present a neat appearance. Mortar shall conform to Section 51-1.135, "Mortar," except the mortar shall consist of one part by volume of cementitious material and 3 parts of clean sand and shall contain only sufficient moisture to permit packing. Mortar shall be cured by keeping it damp for 3 days.

Item D of the eighteenth paragraph in Section 86-2.05C, "Installation," of the Standard Specifications is amended to read:

- D. The conduit shall be placed in the bottom of the trench, and the trench shall be backfilled with minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 590 pounds of cementitious material per cubic yard. Concrete backfill shall be placed to the pavement surface except, when the trench is in hot mix asphalt pavement and additional pavement is not being placed, the top 0.10 foot of the trench shall be backfilled with hot mix asphalt produced from commercial quality paving asphalt and aggregates.

Item E of the eighteenth paragraph in Section 86-2.05C, "Installation," of the Standard Specifications is amended to read:

- E. Prior to spreading hot mix asphalt, tack coat shall be applied in conformance with the provisions in Section 39, "Hot Mix Asphalt." Spreading and compacting of hot mix asphalt shall be performed by any method which will produce a hot mix asphalt surfacing of uniform smoothness, texture and density.

Item C of the twenty-third paragraph in Section 86-2.05C, "Installation," of the Standard Specifications is amended to read:

- C. Precast concrete conduit cradles shall conform to the dimensions shown on the plans and shall be constructed of minor concrete and commercial quality welded wire fabric. Minor concrete shall conform to the provisions in Section 90-10, "Minor Concrete," and shall contain not less than 590 pounds of cementitious material per cubic yard. The cradles shall be moist cured for not less than 3 days.

Item G of the twenty-third paragraph in Section 86-2.05C, "Installation," of the Standard Specifications is amended to read:

- G. The space around conduits through bridge abutment walls shall be filled with mortar conforming to the provisions in Section 51-1.135, "Mortar," except that the proportion of cementitious material to sand shall be one to 3.

The fifth paragraph in Section 86-2.07, "Traffic Pull Boxes," of the Standard Specifications is amended to read:

- Concrete placed around and under traffic pull boxes as shown on the plans shall be minor concrete conforming to the provisions in Section 90-10, "Minor Concrete."

The traffic signal controller cabinet requirement in the table in Section 86-2.08A, "Conductor Identification," of the Standard Specifications is amended to read:

Traffic Signal	Ungrounded Circuit Conductor	Blk	None	CON-1	6
Controller Cabinet	Grounded Circuit Conductor	Wht	None	CON-2	6

The first sentence of the first paragraph of Section 86-4.06, "Pedestrian Signal Faces," of the Standard Specifications is amended to read:

- Message symbols for pedestrian signal faces shall be white WALKING PERSON and Portland orange UPRAISED HAND conforming to the requirements in the Institute of Transportation Engineers Standards: "Pedestrian Traffic Control Signal Indications" and the "California MUTCD."

The second sentence of the tenth paragraph of Section 86-4.07, "Light Emitting Diode Pedestrian Signal Face 'Upraised Hand' Module," of the Standard Specifications is amended to read:

- The color of "UPRAISED HAND" shall be Portland orange conforming to the requirements of the Institute of Transportation Engineers Standards: "Pedestrian Traffic Control Signal Indications" and the "California MUTCD."

The second sentence of the first paragraph of subsection, "Elastomeric Sealant," of Section 86-5.01A(5), "Installation Details," of the Standard Specifications is amended to read:

- Sealant shall be suitable for use in both hot mix asphalt and portland cement concrete.

The first sentence of the first paragraph of subsection, "Asphatic Emulsion Sealant," of Section 86-5.01A(5), "Installation Details," of the Standard Specifications is amended to read:

- Asphaltic emulsion sealant shall conform to the requirements in State Specification 8040-41A-15 and shall be used only for filling slots in hot mix asphalt pavement.

The third sentence of the first paragraph of subsection, "Hot-Melt Rubberized Asphalt Sealant," of Section 86-5.01A(5), "Installation Details," of the Standard Specifications is amended to read:

- Sealant shall be suitable for use in both hot mix asphalt and portland cement concrete.

The tenth paragraph of subsection, "Hot-Melt Rubberized Asphalt Sealant," of Section 86-5.01A(5), "Installation Details," of the Standard Specifications is amended to read:

- If hot mix asphalt surfacing is to be placed, the loop conductors shall be installed prior to placing the uppermost layer of hot mix asphalt. The conductors shall be installed, as shown on the plans, in the compacted layer of hot mix asphalt immediately below the uppermost layer. Installation details shall be as shown on the plans, except the sealant shall fill the slot flush to the surface.

The first paragraph in Section 86-5.01D, "Removing or Abandoning Existing Pressure-Sensitive Detectors," of the Standard Specifications is amended to read:

- When a foundation for a pressure-sensitive vehicle detector is to be removed, the hole left by removing the detector frame and foundation shall be filled with minor concrete, except the roadway surface shall be reconstructed with material to match existing surfacing. Minor concrete shall conform to the provisions in Section 90-10, "Minor Concrete," except that the concrete shall contain not less than 420 pounds of cementitious material per cubic yard for hot mix asphalt surfaced roadways and not less than 590 pounds of cementitious material per cubic yard for portland cement concrete surfaced roadways.

The first paragraph of Section 86-8.01, "Payment," of the Standard Specifications is amended to read:

- The contract lump sum price or prices paid for signal, ramp metering, flashing beacon, lighting, sign illumination, traffic monitoring station, highway advisory radio systems, closed circuit television systems, or combinations thereof; for modifying or removing those systems; for temporary systems; or the lump sum or unit prices paid for various units of those systems; or the lump sum or per foot price paid for conduit of the various sizes, types and installation methods listed in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and installing, modifying, or removing the systems, combinations or units thereof, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer, including any necessary pull boxes (except when the type required is shown as a separate contract item); excavation and backfill; concrete foundations (except when shown as a separate contract item); pedestrian barricades; furnishing and installing illuminated street name signs; installing sign panels on pedestrian barricades, on flashing beacon standards, and on traffic signal mast arms; restoring sidewalk, pavement and appurtenances damaged or destroyed during construction; salvaging existing materials; and making all required tests.

SECTION 88 GEOSYNTHETICS

88-1.01 GENERAL

88-1.01A Summary

Section 88 includes specifications for geosynthetics. Geosynthetics are used for:

1. Filtration
2. Drainage
3. Reinforcement
4. Water pollution control
5. Channel and shore protection
6. Pavement interlayer
7. Separation and stabilization

88-1.01B Submittals

Submit:

1. Certificate of Compliance under Section 6-1.07, "Certificates of Compliance"
2. Samples representing each lot
3. Minimum average roll values (MARV)

Label submittals with the manufacturer's name and product information.

88-1.01C Quality Control and Assurance

Treat geosynthetics to resist degradation from exposure to sunlight. Using covers, protect geosynthetics from moisture, sunlight, and shipping and storage damage.

88-1.02 FILTRATION

88-1.02A Filter Fabric

Geosynthetics used for filter fabric must be permeable and nonwoven. Filter fabric must consist of 1 of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Filter fabric must comply with:

Filter Fabric				
Property	ASTM	Specification		
		Class A	Class B	Class C
Grab breaking load, 1-inch grip, lb minimum in each direction	D 4632	157		
Apparent elongation, percent minimum in each direction	D 4632	50		
Hydraulic bursting strength, psi minimum	D 3786	210		
Ultraviolet resistance, percent minimum retained grab breaking load, 500 hr	D 4355	70		
Permittivity, sec ⁻¹ minimum	D 4491	0.5	0.2	0.1
Apparent opening size, average roll value, U.S. Standard sieve size maximum	D 4751	40	60	70

88-1.03 DRAINAGE

88-1.03A Geocomposite Wall Drain

Geocomposite wall drain must consist of a polymeric core with filter fabric integrally bonded to 1 or both sides of the core creating a stable drainage void.

Filter fabric must comply with Section 88-1.02, "Filtration."

Geocomposite wall drain must comply with:

Geocomposite Wall Drain		
Property	ASTM	Specification
Thickness with fabric, inches maximum	--	2
Transmissivity, gradient = 1.0, normal stress = 5,000 psf, gal/min/ft	D 4716	4

88-1.04 REINFORCEMENT

88-1.04A Geotechnical Subsurface Reinforcement

General

Geosynthetic used for geotechnical subsurface reinforcement must be either of the following:

1. Geotextile
2. Geogrid

Geotextile permittivity must be at least 0.05 sec⁻¹ determined under ASTM D 4491.

Geogrid must have a regular and defined open area. The open area must be from 50 to 90 percent of the total grid area.

Long Term Design Strength

Long Term Design Strength (LTDS) of geosynthetic reinforcement is the ultimate tensile strength in the primary strength direction divided by reduction factors. Calculate the LTDS from the guidelines in Geosynthetic Research Institute (GRI) Standard Practice GG4a, GRI GG4b, or GRI GT7.

The product of the appropriate reduction factors must be at least 1.30. Determine the reduction factor for creep using a 75-year design life for permanent applications and a 5-year design life for temporary applications. Determine the installation damage reduction factor based on the characteristics of the backfill materials used.

If test data is not available, use default values of reduction factors in the GRI Standard Practice to calculate LTDS.

Submit the LTDS and its supporting calculations at least 15 days before placing geosynthetic reinforcement. Do not install before the Engineer's approval. The LTDS must be signed by an engineer who is registered as a civil engineer in the State.

88-1.05 WATER POLLUTION CONTROL

Geosynthetics used for water pollution control must comply with:

Water Pollution Control Geosynthetics

Property	ASTM	Application				
		Silt Fence		Sediment Filter Bag	Gravel-Filled Bags	Temporary Cover
		Woven	Non-woven			
Grab breaking load, 1-inch grip, lb minimum in each direction	D 4632	120	120	255	205	200
Apparent elongation, percent minimum, in each direction	D 4632	15	50	--	--	50
Water flow rate, gallons per minute/square foot minimum and maximum average roll value	D 4491	10 - 100	100 - 150	80 - 200	80 - 150	75 - 120
Permittivity, sec ⁻¹ minimum	D 4491	0.1	1.1	1.0	0.2	1.0
Apparent opening size, inches maximum average roll value	D 4751	0.023	0.023	0.033	0.016	0.007
Ultraviolet resistance, percent minimum retained grab breaking load, 500 hr.	D 4355	70	70	70	70	70

88-1.06 CHANNEL AND SHORE PROTECTION

88-1.06A Rock Slope Protection

Rock slope protection (RSP) fabric must be a permeable, nonwoven, needle-punched geotextile. RSP fabric consists of 1 of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Polymers must be either virgin compounds or clean reworked material. Do not subject virgin compounds to use or processing other than required for initial manufacture. Clean reworked material must be previously processed material from the processor's own production that has been reground, pelletized, or solvated. RSP fabric must not consist of more than 20 percent by weight of clean reworked material. Do not use recycled materials from either post-consumer or post-industrial sources.

Class 8 or Class 10 RSP fabric must comply with:

Rock Slope Protection Fabric

Property	ASTM	Specification	
		Class 8	Class 10
Weight, oz/yd ² minimum	D 5261	7.5	9.5
Grab breaking load, lb 1-inch grip, min. in each direction	D 4632	200	250
Apparent elongation, percent min., in each direction	D 4632	50	50
Permittivity, sec ⁻¹ , minimum	D 4491	1.0	0.70
Apparent opening size, U.S. Standard sieve size minimum and maximum	D 4751	70 - 100	70 - 100
Ultraviolet resistance, percent minimum retained grab breaking load, 500 hr.	D4355	70	70

88-1.07 PAVEMENT INTERLAYER

88-1.07A Paving Fabric

Geosynthetics used for paving fabric must be nonwoven. Paving fabric must comply with:

Geosynthetic Paving Fabric

Property	ASTM	Specification
Mass per unit area, oz/yd ² minimum	D 5261	4.1
Grab breaking load, lb 1-inch grip, minimum, in each direction	D 4632	100
Apparent elongation, percent minimum in each direction	D 4632	50
Hydraulic bursting strength, psi minimum	D 3786	200
Melting point, °F minimum	D 276	325
Asphalt retention, gal/yd ² minimum	D 6140	0.2

88-1.07B Paving Mat

Geosynthetics used for paving mat must be a nonwoven fiberglass and polyester hybrid material. Paving mat must comply with:

Geosynthetic Paving Mat

Property	ASTM	Specification
Breaking force, lb/2 inches minimum	D 5035	45
Ultimate elongation, percent maximum	D 5035	5
Mass per unit area, oz/ sq yd minimum	D 5261	3.7
Melting point, °F minimum	D 276	400
Asphalt retention, gal/yd ² minimum	D 6140	0.10

88-1.07C Paving Grid

Geosynthetics used for paving grid must be a geopolymer material formed into a grid of integrally connected elements with openings. Paving grid must comply with:

Geosynthetic Paving Grid				
Property	Test	Specification		
		Class I	Class II	Class III
Tensile strength at ultimate, lb/in ^a minimum	ASTM D 6637	560 x 1,120	560	280
Aperture size, inch minimum	Calipered	0.5	0.5	0.5
Elongation, % maximum	ASTM D 6637	12	12	12
Mass per area, oz / sqyd minimum	ASTM D 5261	16	10	5.5
Melting point, °F minimum	ASTM D 276	325	325	325

Note:

^a For Class I, machine direction x cross direction. For Class II and Class III, both directions.

88-1.07D Paving Geocomposite Grid

Paving geocomposite grid consists of paving grid specified under Section 88-1.07C, "Paving Grid," bonded or integrated with paving fabric specified under Section 88-1.07A, "Paving Fabric."

Paving geocomposite grid must have a peel strength of at least 10 pounds per foot determined under ASTM D 413.

88-1.07E Geocomposite Strip Membrane

Geocomposite strip membrane must consist of various widths of strips manufactured from of asphaltic rubber and geosynthetics. Geocomposite strip membrane must comply with:

Geocomposite Strip Membrane		
Property	ASTM	Specification
Strip tensile strength, lbs/inch minimum	D 882	50
Elongation at break, % minimum	D 882	50
Resistance to puncture, lbs. minimum	E 154	200
Permeance, perms maximum	E 96/E 96M	0.10
Pliability, 1/4 inch mandrel with sample conditioned at 25 °F	D 146	No cracks in fabric or bitumen
Melting point, °F	D 276	325

88-1.08 SEPARATION AND STABILIZATION

88-1.08A Subgrade Enhancement Geotextile

Subgrade enhancement geotextile must consist of either of the following:

1. Polyester
2. Polypropylene

Subgrade enhancement geotextile must comply with:

Subgrade Enhancement Geotextile

Property	ASTM	Specification ^a				
		Class A1	Class A2	Class B1	Class B2	Class B3
Elongation at break, %	D 4632	<50	≥50	<50	<50	≥50
Grab tensile strength, lb minimum	D4632	250	160	--	320	200
Wide width tensile strength at 5% strain, lb/ft minimum	D 4595	--	--	2,000	--	--
Wide width tensile strength at ultimate strength, lb/ft minimum	D 4595	--	--	4,800	--	--
Tear strength, lb minimum	D 4533	90	60	--	120	80
Puncture strength, lb minimum	D 6241	500	310	620	620	430
Permittivity, sec ⁻¹ minimum	D 4491	0.05	0.05	0.20	0.20	0.20
Apparent opening size, inches maximum	D 4751	0.012	0.012	0.024	0.012	0.012
Ultraviolet stability (retained strength after 500 hrs exposure), % minimum	D 4355	70	70	70	70	70

Notes:

^a Specifications are based on minimum average roll value in the weaker principle direction except apparent opening size is based on maximum average roll value.

88-1.09 PAYMENT

The Department measures and pays for geosynthetics under the specifications requiring their use.

SECTION 90: PORTLAND CEMENT CONCRETE

Issue Date: January 5, 2007

Section 90, "Portland Cement Concrete," of the Standard Specifications is amended to read:

SECTION 90: PORTLAND CEMENT CONCRETE

90-1 GENERAL

90-1.01 DESCRIPTION

- Portland cement concrete shall be composed of cementitious material, fine aggregate, coarse aggregate, admixtures if used, and water, proportioned and mixed as specified in these specifications.
- The Contractor shall determine the mix proportions for concrete in conformance with these specifications.
- Class 1 concrete shall contain not less than 675 pounds of cementitious material per cubic yard.
- Class 2 concrete shall contain not less than 590 pounds of cementitious material per cubic yard.
- Class 3 concrete shall contain not less than 505 pounds of cementitious material per cubic yard.
- Class 4 concrete shall contain not less than 420 pounds of cementitious material per cubic yard.
- Minor concrete shall contain not less than 550 pounds of cementitious material per cubic yard unless otherwise specified in these specifications or the special provisions.
- Unless otherwise designated on the plans or specified in these specifications or the special provisions, the amount of cementitious material used per cubic yard of concrete in structures or portions of structures shall conform to the following:

Use	Cementitious Material Content (Pounds/CY)
Concrete designated by compressive strength: Deck slabs and slab spans of bridges Roof sections of exposed top box culverts Other portions of structures	675 min., 800 max. 675 min., 800 max. 590 min., 800 max.
Concrete not designated by compressive strength: Deck slabs and slab spans of bridges Roof sections of exposed top box culverts Prestressed members Seal courses Other portions of structures	675 min. 675 min. 675 min. 675 min. 590 min.
Concrete for precast members	590 min., 925 max.

- Whenever the 28-day compressive strength shown on the plans is greater than 3,600 pounds per square inch, the concrete shall be designated by compressive strength. If the plans show a 28-day compressive strength that is 4,000 pounds per square inch or greater, an additional 14 days will be allowed to obtain the specified strength. The 28-day compressive strengths shown on the plans that are 3,600 pounds per square inch or less are shown for design information only and are not a requirement for acceptance of the concrete.

- Concrete designated by compressive strength shall be proportioned such that the concrete will attain the strength shown on the plans or specified in the special provisions.

- Before using concrete for which the mix proportions have been determined by the Contractor, or in advance of revising those mix proportions, the Contractor shall submit in writing to the Engineer a copy of the mix design.

- Compliance with cementitious material content requirements will be verified in conformance with procedures described in California Test 518 for cement content. For testing purposes, supplementary cementitious material shall be considered to be cement. Batch proportions shall be adjusted as necessary to produce concrete having the specified cementitious material content.

- If any concrete has a cementitious material, portland cement, or supplementary cementitious material content that is less than the minimum required, the concrete shall be removed. However, if the Engineer determines that the concrete is structurally adequate, the concrete may remain in place and the Contractor shall pay to the State \$0.25 for each pound of cementitious material, portland cement, or supplementary cementitious material that is less than the minimum required. The Department may deduct the amount from any moneys due, or that may become due, the Contractor under the contract. The deductions will not be made unless the difference between the contents required and those actually provided exceeds the batching tolerances permitted by Section 90-5, "Proportioning." No deductions will be made based on the results of California Test 518.

- The requirements of the preceding paragraph shall not apply to minor concrete or commercial quality concrete.

90-2 MATERIALS

90-2.01 CEMENTITIOUS MATERIALS

- Unless otherwise specified, cementitious material shall be either a combination of Type II or Type V portland cement and a supplementary cementitious material, or a blended cement.

- Cementitious materials used in cast-in-place concrete for exposed surfaces of like elements of a structure shall be from the same sources and of the same proportions.

- Cementitious materials shall be protected from moisture until used. Sacked cementitious materials shall be piled to permit access for tallying, inspecting, and identifying each shipment.

- Facilities shall be provided to ensure that cementitious materials meeting this Section 90-2.01 are kept separate from other cementitious materials. Sampling cementitious materials shall be in conformance with California Test 125.

- The Contractor shall furnish a Certificate of Compliance for cementitious materials in conformance with the provisions in Section 6-1.07, "Certificates of Compliance." The Certificate of Compliance shall indicate the source by name and location (including country, state, and city). If cementitious material is delivered directly to the job site, the Certificate of Compliance shall be signed by the cementitious material supplier. If the cementitious material is used in ready-mixed concrete or in precast concrete products purchased as such by the Contractor, the Certificate of Compliance shall be signed by the manufacturer of the concrete or product.

90-2.01A CEMENT

- Portland cement shall conform to the requirements in ASTM Designation: C 150 except, using a 10-sample moving average, limestone shall not exceed 2.5 percent. The C_3S content of Type II cement shall not exceed 65 percent.
- Blended cement shall conform to the requirements for Portland Blast-Furnace Slag, Cement Type IS (MS) or Portland-Pozzolan Cement, Type IP (MS) in AASHTO Designation: M 240 and shall be comprised of an intimate and uniform blend of Type II or Type V cement and supplementary cementitious material in an amount conforming to the requirements in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials."
 - In addition, blended cement, Type II portland cement, and Type V portland cement shall conform to the following requirements:
 - A. The cement shall not contain more than 0.60-percent by mass of alkalis, calculated as the percentage of Na_2O plus 0.658 times the percentage of K_2O , when determined by methods as required in AASHTO Designation: T 105;
 - B. The autoclave expansion shall not exceed 0.50-percent; and
 - C. Mortar, containing the cement to be used and Ottawa sand, when tested in conformance with California Test 527, shall not expand in water more than 0.010-percent and shall not contract in air more than 0.048-percent, except that when cement is to be used for precast prestressed concrete piling, precast prestressed concrete members, or steam cured concrete products, the mortar shall not contract in air more than 0.053-percent.
- Type III portland cement shall be used only as specified in the special provisions or with the approval of the Engineer. Type III portland cement shall conform to the additional requirements listed above for Type II portland cement, except when tested in conformance with California Test 527, mortar containing Type III portland cement shall not contract in air more than 0.075-percent.

90-2.01B SUPPLEMENTARY CEMENTITIOUS MATERIALS (SCM)

- Fly ash shall conform to the requirements in AASHTO Designation: M 295, Class F, and the following:
 - A. Calcium oxide content shall not exceed 10 percent.
 - B. The available alkali, as sodium oxide equivalent, shall not exceed 1.5 percent when determined in conformance with the requirements in ASTM Designation: C 311 or the total alkali, as sodium oxide equivalent, shall not exceed 5.0 percent when determined in conformance with the requirements in AASHTO Designation: T 105.
 - C. Commingling of fly ash from different sources at uncontrolled ratios is permissible only if the following criteria are satisfied:
 1. Sources of fly ash to be commingled shall be on the approved list of materials for use in concrete.
 2. Testing of the commingled product is the responsibility of the fly ash supplier.
 3. Each fly ash's running average of density shall not differ from any other by more than 0.01-pound per cubic inch at the time of commingling.
 4. Each fly ash's running average of loss on ignition shall not differ from any other by more than one percent at the time of commingling.
 5. The final product of commingled fly ash shall conform to the requirement in AASHTO Designation: M 295.
- Raw or calcined natural pozzolans shall conform to the requirements in AASHTO Designation: M 295, Class N and the following requirements:
 - A. Calcium oxide content shall not exceed 10 percent.
 - B. The available alkali, as sodium oxide equivalent, shall not exceed 1.5 percent when determined in conformance with the requirements in ASTM Designation: C 311 or the total alkali, as sodium oxide equivalent, shall not exceed 5.0 percent when determined in conformance with the requirements in AASHTO Designation: T 105.
- Ground Granulated Blast Furnace Slag (GGBFS) shall conform to the requirements in AASHTO Designation: M 302, Grade 100 or Grade 120.
- Silica Fume shall conform to the requirements of AASHTO Designation: M 307, with reduction in mortar expansion of 80 percent, minimum, using the cement from the proposed mix design.

90-2.01C REQUIRED USE OF SUPPLEMENTARY CEMENTITIOUS MATERIALS

- The amount of portland cement and SCM used in portland cement concrete shall conform to the minimum cementitious material content provisions in Section 90-1.01, "Description," or Section 90-4.05, "Optional Use of Chemical Admixtures," and the following:

- A. If a blended cement conforming to the provisions in Section 90-2.01A, "Cement," is used, the minimum amount of SCM incorporated into the cement shall conform to the provisions in this Section 90-2.01C.
- B. Fly ash or natural pozzolan, silica fume, or GGBFS shall not be used with Type IP or Type IS cements.

- Use of SCMs shall conform to the following:

- A. If fly ash or natural pozzolan is used:

1. The minimum amount of portland cement shall not be less than 75 percent by weight of the specified minimum cementitious material content.
2. The minimum amount of fly ash or natural pozzolan shall be:
 - a. Fifteen percent by weight of the total amount of cementitious material if the calcium oxide content of fly ash or natural pozzolan is equal to or less than 2 percent by weight;
 - b. Twenty-five percent by weight of the total amount of cementitious material if the calcium oxide content of fly ash or natural pozzolan is greater than 2 percent by weight.
3. The total amount of fly ash or natural pozzolan shall not exceed 35 percent by weight of the total amount of cementitious material to be used in the mix. If Section 90-1.01, "Description," specifies a maximum cementitious material content in pounds per cubic yard, the total weight of portland cement and fly ash or natural pozzolan per cubic yard shall not exceed the specified maximum cementitious material content.

- B. If silica fume is used:

1. The amount of silica fume shall not be less than 10 percent by weight of the total amount of cementitious material.
2. The amount of portland cement shall not be less than 75 percent by weight of the specified minimum cementitious material content.
3. If Section 90-1.01, "Description," specifies a maximum cementitious material content in pounds per cubic yard, the total weight of portland cement and silica fume per cubic yard shall not exceed the specified maximum cementitious material content.

- C. If GGBFS is used:

1. The minimum amount of GGBFS shall be either:
 - a. Forty percent of the total cementitious material to be used, if the aggregates used in the concrete are on the Department's list of "Approved Aggregates For Use in Concrete with Reduced Fly Ash."
 - b. No less than 50 percent.
2. The amount of GGBFS shall not exceed 60 percent by weight of the total amount of cementitious materials to be used.

90-2.02 AGGREGATES

- Aggregates shall be free from deleterious coatings, clay balls, roots, bark, sticks, rags, and other extraneous material.
- The Contractor shall provide safe and suitable facilities, including necessary splitting devices for obtaining samples of aggregates, in conformance with California Test 125.
 - Aggregates shall be of such character that it will be possible to produce workable concrete within the limits of water content provided in Section 90-6.06, "Amount of Water and Penetration."
 - Aggregates shall have not more than 10 percent loss when tested for soundness in conformance with the requirements in California Test 214. The soundness requirement for fine aggregate will be waived, provided that the durability index, D_f , of the fine aggregate is 60 or greater when tested for durability in conformance with California Test 229.

- If the results of any one or more of the Cleanness Value, Sand Equivalent, or aggregate grading tests do not meet the requirements specified for "Operating Range" but all meet the "Contract Compliance" requirements, the placement of concrete shall be suspended at the completion of the current pour until tests or other information indicate that the next material to be used in the work will comply with the requirements specified for "Operating Range."

- If the results of either or both the Cleanness Value and coarse aggregate grading tests do not meet the requirements specified for "Contract Compliance," the concrete that is represented by the tests shall be removed. However, if the Engineer determines that the concrete is structurally adequate, the concrete may remain in place, and the Contractor shall pay to the State \$3.50 per cubic yard for paving concrete and \$5.50 per cubic yard for all other concrete for the concrete represented by these tests and left in place. The Department may deduct the amount from any moneys due, or that may become due, the Contractor under the contract.

- If the results of either or both the Sand Equivalent and fine aggregate grading tests do not meet the requirements specified for "Contract Compliance," the concrete which is represented by the tests shall be removed. However, if the Engineer determines that the concrete is structurally adequate, the concrete may remain in place, and the Contractor shall pay to the State \$3.50 per cubic yard for paving concrete and \$5.50 per cubic yard for all other concrete for the concrete represented by these tests and left in place. The Department may deduct the amount from any moneys due, or that may become due, the Contractor under the contract.

- The 2 preceding paragraphs apply individually to the "Contract Compliance" requirements for coarse aggregate and fine aggregate. When both coarse aggregate and fine aggregate do not conform to the "Contract Compliance" requirements, both paragraphs shall apply. The payments specified in those paragraphs are in addition to any payments made in conformance with the provisions in Section 90-1.01, "Description."

- No single Cleanness Value, Sand Equivalent, or aggregate grading test shall represent more than 300 cubic yards of concrete or one day's pour, whichever is smaller.

- When the source of an aggregate is changed, the Contractor shall adjust the mix proportions and submit in writing to the Engineer a copy of the mix design before using the aggregates.

90-2.02A COARSE AGGREGATE

- Coarse aggregate shall consist of gravel, crushed gravel, crushed rock, reclaimed aggregate, crushed air-cooled iron blast furnace slag or combinations thereof. Crushed air-cooled blast furnace slag shall not be used in reinforced or prestressed concrete.

- Reclaimed aggregate is aggregate that has been recovered from plastic concrete by washing away the cementitious material. Reclaimed aggregate shall conform to all aggregate requirements.

- Coarse aggregate shall conform to the following quality requirements:

Tests	California Test	Requirements
Loss in Los Angeles Rattler (after 500 revolutions)	211	45% max.
Cleanness Value		
Operating Range	227	75 min.
Contract Compliance	227	71 min.

- In lieu of the above Cleanness Value requirements, a Cleanness Value "Operating Range" limit of 71, minimum, and a Cleanness Value "Contract Compliance" limit of 68, minimum, will be used to determine the acceptability of the coarse aggregate if the Contractor furnishes a Certificate of Compliance, as provided in Section 6-1.07, "Certificates of Compliance," certifying that:

- Coarse aggregate sampled at the completion of processing at the aggregate production plant had a Cleanness Value of not less than 82 when tested in conformance with the requirements in California Test 227; and
- Prequalification tests performed in conformance with the requirements in California Test 549 indicated that the aggregate would develop a relative strength of not less than 95 percent and would have a relative shrinkage not greater than 105 percent, based on concrete.

90-2.02B FINE AGGREGATE

- Fine aggregate shall consist of natural sand, manufactured sand produced from larger aggregate or a combination thereof. Manufactured sand shall be well graded.

- Fine aggregate shall conform to the following quality requirements:

Test	California Test	Requirements
Organic Impurities	213	Satisfactory ^a
Mortar Strengths Relative to Ottawa Sand	515	95%, min.
Sand Equivalent:		
Operating Range	217	75, min.
Contract Compliance	217	71, min.

- a Fine aggregate developing a color darker than the reference standard color solution may be accepted if it is determined by the Engineer, from mortar strength tests, that a darker color is acceptable.

• In lieu of the above Sand Equivalent requirements, a Sand Equivalent "Operating Range" limit of 71, minimum, and a Sand Equivalent "Contract Compliance" limit of 68, minimum, will be used to determine the acceptability of the fine aggregate if the Contractor furnishes a Certificate of Compliance, as provided in Section 6-1.07, "Certificates of Compliance," certifying that:

- A. Fine aggregate sampled at the completion of processing at the aggregate production plant had a Sand Equivalent value of not less than 82 when tested by California Test 217; and
- B. Prequalification tests performed in conformance with California Test 549 indicated that the aggregate would develop a relative strength of not less than 95 percent and would have a relative shrinkage not greater than 105 percent, based on concrete.

90-2.03 WATER

• In conventionally reinforced concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 1,000 parts per million of chlorides as Cl, when tested in conformance with California Test 422, nor more than 1,300 parts per million of sulfates as SO₄, when tested in conformance with California Test 417. In prestressed concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 650 parts per million of chlorides as Cl, when tested in conformance with California Test 422, nor more than 1,300 parts per million of sulfates as SO₄, when tested in conformance with California Test 417. In no case shall the water contain an amount of impurities that will cause either: 1) a change in the setting time of cement of more than 25 percent when tested in conformance with the requirements in ASTM Designation: C 191 or ASTM Designation: C 266 or 2) a reduction in the compressive strength of mortar at 14 days of more than 5 percent, when tested in conformance with the requirements in ASTM Designation: C 109, when compared to the results obtained with distilled water or deionized water, tested in conformance with the requirements in ASTM Designation: C 109.

- In nonreinforced concrete work, the water for curing, for washing aggregates and for mixing shall be free from oil and shall not contain more than 2,000 parts per million of chlorides as Cl, when tested in conformance with California Test 422, or more than 1,500 parts per million of sulfates as SO₄, when tested in conformance with California Test 417.
- In addition to the above provisions, water for curing concrete shall not contain impurities in a sufficient amount to cause discoloration of the concrete or produce etching of the surface.
- Water reclaimed from mixer wash-out operations may be used in mixing concrete. The water shall not contain coloring agents or more than 300 parts per million of alkalis (Na₂O + 0.658 K₂O) as determined on the filtrate. The specific gravity of the water shall not exceed 1.03 and shall not vary more than ±0.010 during a day's operations.

90-2.04 ADMIXTURE MATERIALS

- Admixture materials shall conform to the requirements in the following ASTM Designations:
 - A. Chemical Admixtures—ASTM Designation: C 494.
 - B. Air-entraining Admixtures—ASTM Designation: C 260.

90-3 AGGREGATE GRADINGS

90-3.01 GENERAL

• Before beginning concrete work, the Contractor shall submit in writing to the Engineer the gradation of the primary aggregate nominal sizes that the Contractor proposes to furnish. If a primary coarse aggregate or the fine aggregate is separated into 2 or more sizes, the proposed gradation shall consist of the gradation for each individual size, and the proposed proportions of each individual size, combined mathematically to indicate one proposed gradation. The proposed gradation

shall meet the grading requirements shown in the table in this section, and shall show the percentage passing each of the sieve sizes used in determining the end result.

- The Engineer may waive, in writing, the gradation requirements in this Section 90-3.01 and in Sections 90-3.02, "Coarse Aggregate Grading," 90-3.03, "Fine Aggregate Grading," and 90-3.04, "Combined Aggregate Gradings," if, in the Engineer's opinion, furnishing the gradation is not necessary for the type or amount of concrete work to be constructed.
- Gradations proposed by the Contractor shall be within the following percentage passing limits:

Primary Aggregate Nominal Size	Sieve Size	Limits of Proposed Gradation
1 1/2" x 3/4"	1"	19 - 41
1" x No. 4	3/4"	52 - 85
1" x No. 4	3/8"	15 - 38
1/2" x No. 4	3/8"	40 - 78
3/8" x No. 8	3/8"	50 - 85
Fine Aggregate	No. 16	55 - 75
Fine Aggregate	No. 30	34 - 46
Fine Aggregate	No. 50	16 - 29

- Should the Contractor change the source of supply, the Contractor shall submit in writing to the Engineer the new gradations before their intended use.

90-3.02 COARSE AGGREGATE GRADING

- The grading requirements for coarse aggregates are shown in the following table for each size of coarse aggregate:

Sieve Sizes	Percentage Passing Primary Aggregate Nominal Sizes							
	1 1/2" x 3/4"		1" x No. 4		1/2" x No. 4		3/8" x No. 8	
	Operating Range	Contract Compliance	Operating Range	Contract Compliance	Operating Range	Contract Compliance	Operating Range	Contract Compliance
2"	100	100	—	—	—	—	—	—
1 1/2"	88 - 100	85 - 100	100	100	—	—	—	—
1"	X ±18	X ±25	88 - 100	86 - 100	—	—	—	—
3/4"	0 - 17	0 - 20	X ±15	X ±22	100	100	—	—
1/2"	—	—	—	—	82 - 100	80 - 100	100	100
3/8"	0 - 7	0 - 9	X ±15	X ±22	X ±15	X ±22	X ±15	X ±20
No. 4	—	—	0 - 16	0 - 18	0 - 15	0 - 18	0 - 25	0 - 28
No. 8	—	—	0 - 6	0 - 7	0 - 6	0 - 7	0 - 6	0 - 7

- In the above table, the symbol X is the gradation that the Contractor proposes to furnish for the specific sieve size as provided in Section 90-3.01, "General."
- Coarse aggregate for the 1 1/2 inch, maximum, combined aggregate grading as provided in Section 90-3.04, "Combined Aggregate Gradings," shall be furnished in 2 or more primary aggregate nominal sizes. Each primary aggregate nominal size may be separated into 2 sizes and stored separately, provided that the combined material conforms to the grading requirements for that particular primary aggregate nominal size.
- When the one inch, maximum, combined aggregate grading as provided in Section 90-3.04, "Combined Aggregate Gradings," is to be used, the coarse aggregate may be separated into 2 sizes and stored separately, provided that the combined material shall conform to the grading requirements for the 1" x No. 4 primary aggregate nominal size.

90-3.03 FINE AGGREGATE GRADING

- Fine aggregate shall be graded within the following limits:

Sieve Sizes	Percentage Passing	
	Operating Range	Contract Compliance
3/8"	100	100
No. 4	95 - 100	93 - 100
No. 8	65 - 95	61 - 99
No. 16	X ±10	X ±13
No. 30	X ±9	X ±12
No. 50	X ±6	X ±9
No. 100	2 - 12	1 - 15
No. 200	0 - 8	0 - 10

- In the above table, the symbol X is the gradation that the Contractor proposes to furnish for the specific sieve size as provided in Section 90-3.01, "General."
- In addition to the above required grading analysis, the distribution of the fine aggregate sizes shall be such that the difference between the total percentage passing the No. 16 sieve and the total percentage passing the No. 30 sieve shall be between 10 and 40, and the difference between the percentage passing the No. 30 and No. 50 sieves shall be between 10 and 40.
- Fine aggregate may be separated into 2 or more sizes and stored separately, provided that the combined material conforms to the grading requirements specified in this Section 90-3.03.

90-3.04 COMBINED AGGREGATE GRADINGS

- Combined aggregate grading limits shall be used only for the design of concrete mixes. Concrete mixes shall be designed so that aggregates are combined in proportions that shall produce a mixture within the grading limits for combined aggregates as specified herein.
- The combined aggregate grading, except when otherwise specified in these specifications or the special provisions, shall be either the 1 1/2 inch, maximum grading, or the 1 inch, maximum grading, at the option of the Contractor.

Grading Limits of Combined Aggregates

Sieve Sizes	Percentage Passing			
	1 1/2" Max.	1" Max.	1/2" Max.	3/8" Max.
2"	100	—	—	—
1 1/2"	90 - 100	100	—	—
1"	50 - 86	90 - 100	—	—
3/4"	45 - 75	55 - 100	100	—
1/2"	—	—	90 - 100	100
3/8"	38 - 55	45 - 75	55 - 86	50 - 100
No. 4	30 - 45	35 - 60	45 - 63	45 - 63
No. 8	23 - 38	27 - 45	35 - 49	35 - 49
No. 16	17 - 33	20 - 35	25 - 37	25 - 37
No. 30	10 - 22	12 - 25	15 - 25	15 - 25
No. 50	4 - 10	5 - 15	5 - 15	5 - 15
No. 100	1 - 6	1 - 8	1 - 8	1 - 8
No. 200	0 - 3	0 - 4	0 - 4	0 - 4

- Changes from one grading to another shall not be made during the progress of the work unless permitted by the Engineer.

90-4 ADMIXTURES

90-4.01 GENERAL

- Admixtures used in portland cement concrete shall conform to and be used in conformance with the provisions in this Section 90-4 and the special provisions. Admixtures shall be used when specified or ordered by the Engineer and may be used at the Contractor's option as provided herein.
- Chemical admixtures and air-entraining admixtures containing chlorides as Cl in excess of one percent by weight of admixture, as determined by California Test 415, shall not be used.
- Admixtures shall be uniform in properties throughout their use in the work. Should it be found that an admixture as furnished is not uniform in properties, its use shall be discontinued.

- If more than one admixture is used, the admixtures shall be compatible with each other so that the desirable effects of all admixtures used will be realized.
- Chemical admixtures shall be used in conformance with the manufacturer's written recommendations.

90-4.02 MATERIALS

- Admixture materials shall conform to the provisions in Section 90-2.04, "Admixture Materials."

90-4.03 ADMIXTURE APPROVAL

- No admixture brand shall be used in the work unless it is on the Department's current list of approved brands for the type of admixture involved.
- Admixture brands will be considered for addition to the approved list if the manufacturer of the admixture submits to the Transportation Laboratory a sample of the admixture accompanied by certified test results demonstrating that the admixture complies with the requirements in the appropriate ASTM Designation and these specifications. The sample shall be sufficient to permit performance of all required tests. Approval of admixture brands will be dependent upon a determination as to compliance with the requirements, based on the certified test results submitted, together with tests the Department may elect to perform.
 - If the Contractor proposes to use an admixture of a brand and type on the current list of approved admixture brands, the Contractor shall furnish a Certificate of Compliance from the manufacturer, as provided in Section 6-1.07, "Certificates of Compliance," certifying that the admixture furnished is the same as that previously approved. If a previously approved admixture is not accompanied by a Certificate of Compliance, the admixture shall not be used in the work until the Engineer has had sufficient time to make the appropriate tests and has approved the admixture for use. The Engineer may take samples for testing at any time, whether or not the admixture has been accompanied by a Certificate of Compliance.

90-4.04 REQUIRED USE OF CHEMICAL ADMIXTURES

- If the use of a chemical admixture is specified, the admixture shall be used at the dosage specified, except that if no dosage is specified, the admixture shall be used at the dosage normally recommended by the manufacturer of the admixture.

90-4.05 OPTIONAL USE OF CHEMICAL ADMIXTURES

- The Contractor may use Type A or F, water-reducing; Type B, retarding; or Type D or G, water-reducing and retarding admixtures as described in ASTM Designation: C 494 to conserve cementitious material or to facilitate any concrete construction application subject to the following conditions:
 - A. If a water-reducing admixture or a water-reducing and retarding admixture is used, the cementitious material content specified or ordered may be reduced by a maximum of 5 percent by weight, except that the resultant cementitious material content shall be not less than 505 pounds per cubic yard; and
 - B. When a reduction in cementitious material content is made, the dosage of admixture used shall be the dosage used in determining approval of the admixture.
- Unless otherwise specified, a Type C accelerating chemical admixture conforming to the requirements in ASTM Designation: C 494, may be used in portland cement concrete. Inclusion in the mix design submitted for approval will not be required provided that the admixture is added to counteract changing conditions that contribute to delayed setting of the portland cement concrete, and the use or change in dosage of the admixture is approved in writing by the Engineer.

90-4.06 REQUIRED USE OF AIR-ENTRAINING ADMIXTURES

- When air-entrainment is specified or ordered by the Engineer, the air-entraining admixture shall be used in amounts to produce a concrete having the specified air content as determined by California Test 504.

90-4.07 OPTIONAL USE OF AIR-ENTRAINING ADMIXTURES

- When air-entrainment has not been specified or ordered by the Engineer, the Contractor will be permitted to use an air-entraining admixture to facilitate the use of any construction procedure or equipment provided that the average air content, as determined by California Test 504, of 3 successive tests does not exceed 4 percent, and no single test value exceeds 5.5 percent. If the Contractor elects to use an air-entraining admixture in concrete for pavement, the Contractor shall so indicate at the time the Contractor designates the source of aggregate.

90-4.08 BLANK

90-4.09 BLANK

90-4.10 PROPORTIONING AND DISPENSING LIQUID ADMIXTURES

- Chemical admixtures and air-entraining admixtures shall be dispensed in liquid form. Dispensers for liquid admixtures shall have sufficient capacity to measure at one time the prescribed quantity required for each batch of concrete. Each dispenser shall include a graduated measuring unit into which liquid admixtures are measured to within ± 5 percent of the prescribed quantity for each batch. Dispensers shall be located and maintained so that the graduations can be accurately read from the point at which proportioning operations are controlled to permit a visual check of batching accuracy prior to discharge. Each measuring unit shall be clearly marked for the type and quantity of admixture.

- Each liquid admixture dispensing system shall be equipped with a sampling device consisting of a valve located in a safe and readily accessible position such that a sample of the admixture may be withdrawn slowly by the Engineer.

- If more than one liquid admixture is used in the concrete mix, each liquid admixture shall have a separate measuring unit and shall be dispensed by injecting equipment located in such a manner that the admixtures are not mixed at high concentrations and do not interfere with the effectiveness of each other. When air-entraining admixtures are used in conjunction with other liquid admixtures, the air-entraining admixture shall be the first to be incorporated into the mix, unless it is demonstrated that a different sequence improves performance.

- When automatic proportioning devices are required for concrete pavement, dispensers for liquid admixtures shall operate automatically with the batching control equipment. The dispensers shall be equipped with an automatic warning system in good operating condition that will provide a visible or audible signal at the point at which proportioning operations are controlled when the quantity of admixture measured for each batch of concrete varies from the preselected dosage by more than 5 percent, or when the entire contents of the measuring unit are not emptied from the dispenser into each batch of concrete.

- Unless liquid admixtures are added to premeasured water for the batch, their discharge into the batch shall be arranged to flow into the stream of water so that the admixtures are well dispersed throughout the batch, except that air-entraining admixtures may be dispensed directly into moist sand in the batching bins provided that adequate control of the air content of the concrete can be maintained.

- Liquid admixtures requiring dosages greater than one-half gallon per cubic yard shall be considered to be water when determining the total amount of free water as specified in Section 90-6.06, "Amount of Water and Penetration."

90-4.11 BLANK

90-5 PROPORTIONING

90-5.01 STORAGE OF AGGREGATES

- Aggregates shall be stored or stockpiled in such a manner that separation of coarse and fine particles of each size shall be avoided and the various sizes shall not become intermixed before proportioning.

- Aggregates shall be stored or stockpiled and handled in a manner that prevent contamination by foreign materials. In addition, storage of aggregates at batching or mixing facilities that are erected subsequent to the award of the contract and that furnish concrete to the project shall conform to the following:

- A. Intermingling of the different sizes of aggregates shall be positively prevented. The Contractor shall take the necessary measures to prevent intermingling. The preventive measures may include, but are not necessarily limited to, physical separation of stockpiles or construction of bulkheads of adequate length and height; and
- B. Contamination of aggregates by contact with the ground shall be positively prevented. The Contractor shall take the necessary measures to prevent contamination. The preventive measures shall include, but are not necessarily limited to, placing aggregates on wooden platforms or on hardened surfaces consisting of portland cement concrete, asphalt concrete, or cement treated material.

- In placing aggregates in storage or in moving the aggregates from storage to the weigh hopper of the batching plant, any method that may cause segregation, degradation, or the combining of materials of different gradings that will result in any size of aggregate at the weigh hopper failing to meet the grading requirements, shall be discontinued. Any method of handling aggregates that results in excessive breakage of particles shall be discontinued. The use of suitable devices to reduce impact of falling aggregates may be required by the Engineer.

90-5.02 PROPORTIONING DEVICES

- Weighing, measuring, or metering devices used for proportioning materials shall conform to the requirements in Section 9-1.01, "Measurement of Quantities," and this Section 90-5.02. In addition, automatic weighing systems shall

comply with the requirements for automatic proportioning devices in Section 90-5.03A, "Proportioning for Pavement." Automatic devices shall be automatic to the extent that the only manual operation required for proportioning the aggregates, cement, and supplementary cementitious material for one batch of concrete is a single operation of a switch or starter.

- Proportioning devices shall be tested as frequently as the Engineer may deem necessary to ensure their accuracy.
- Weighing equipment shall be insulated against vibration or movement of other operating equipment in the plant.

When the plant is in operation, the weight of each batch of material shall not vary from the weight designated by the Engineer by more than the tolerances specified herein.

- Equipment for cumulative weighing of aggregate shall have a zero tolerance of ± 0.5 percent of the designated total batch weight of the aggregate. For systems with individual weigh hoppers for the various sizes of aggregate, the zero tolerance shall be ± 0.5 percent of the individual batch weight designated for each size of aggregate. Equipment for cumulative weighing of cement and supplementary cementitious material shall have a zero tolerance of ± 0.5 percent of the designated total batch weight of the cement and supplementary cementitious material. Equipment for weighing cement or supplementary cementitious material separately shall have a zero tolerance of ± 0.5 percent of their designated individual batch weights. Equipment for measuring water shall have a zero tolerance of ± 0.5 percent of its designated weight or volume.

- The weight indicated for any batch of material shall not vary from the preselected scale setting by more than the following:

- A. Aggregate weighed cumulatively shall be within 1.0 percent of the designated total batch weight of the aggregate. Aggregates weighed individually shall be within 1.5 percent of their respective designated batch weights; and
- B. Cement shall be 99 to 102 percent of its designated batch weight. When weighed individually, supplementary cementitious material shall be 99 to 102 percent of its designated batch weight. When supplementary cementitious material and cement are permitted to be weighed cumulatively, cement shall be weighed first to 99 to 102 percent of its designated batch weight, and the total for cement and supplementary cementitious material shall be 99 to 102 percent of the sum of their designated batch weights; and
- C. Water shall be within 1.5 percent of its designated weight or volume.

- Each scale graduation shall be approximately 0.001 of the total capacity of the scale. The capacity of scales for weighing cement, supplementary cementitious material, or cement plus supplementary cementitious material and aggregates shall not exceed that of commercially available scales having single graduations indicating a weight not exceeding the maximum permissible weight variation above, except that no scale shall be required having a capacity of less than 1,000 pounds, with one pound graduations.

90-5.03 PROPORTIONING

- Proportioning shall consist of dividing the aggregates into the specified sizes, each stored in a separate bin, and combining them with cementitious material and water as provided in these specifications. Aggregates shall be proportioned by weight.

- At the time of batching, aggregates shall have been dried or drained sufficiently to result in a stable moisture content such that no visible separation of water from aggregate will take place during transportation from the proportioning plant to the point of mixing. In no event shall the free moisture content of the fine aggregate at the time of batching exceed 8 percent of its saturated, surface-dry weight.

- Should separate supplies of aggregate material of the same size group, but of different moisture content or specific gravity or surface characteristics affecting workability, be available at the proportioning plant, withdrawals shall be made from one supply exclusively and the materials therein completely exhausted before starting upon another.

- Bulk Type IP (MS) cement shall be weighed in an individual hopper and shall be kept separate from the aggregates until the ingredients are released for discharge into the mixer.

- Bulk cement and supplementary cementitious material may be weighed in separate, individual weigh hoppers or may be weighed in the same weigh hopper and shall be kept separate from the aggregates until the ingredients are released for discharge into the mixer. If the cement and supplementary cementitious material are weighed cumulatively, the cement shall be weighed first.

- If cement and supplementary cementitious material are weighed in separate weigh hoppers, the weigh systems for the proportioning of the aggregate, the cement, and the supplementary cementitious material shall be individual and distinct from all other weigh systems. Each weigh system shall be equipped with a hopper, a lever system, and an indicator to constitute an individual and independent material-weighing device. The cement and the supplementary cementitious material shall be discharged into the mixer simultaneously with the aggregate.

- The scales and weigh hoppers for bulk weighing cement, supplementary cementitious material, or cement plus supplementary cementitious material shall be separate and distinct from the aggregate weighing equipment.

- For batches of one cubic yard or more, the batching equipment shall conform to one of the following combinations:
 - A. Separate boxes and separate scale and indicator for weighing each size of aggregate.
 - B. Single box and scale indicator for all aggregates.
 - C. Single box or separate boxes and automatic weighing mechanism for all aggregates.

• In order to check the accuracy of batch weights, the gross weight and tare weight of batch trucks, truck mixers, truck agitators, and non-agitating hauling equipment shall be determined when ordered by the Engineer. The equipment shall be weighed on scales designated by the Engineer.

90-5.03A PROPORTIONING FOR PAVEMENT

• Aggregates and bulk supplementary cementitious material for use in pavement shall be proportioned by weight by means of automatic proportioning devices of approved type conforming to these specifications.

• The Contractor shall install and maintain in operating condition an electronically actuated moisture meter that will indicate, on a readily visible scale, changes in the moisture content of the fine aggregate as it is batched within a sensitivity of 0.5 percent by weight of the fine aggregate.

• The batching of cement, supplementary cementitious material, or cement plus supplementary cementitious material and aggregate shall be interlocked so that a new batch cannot be started until all weigh hoppers are empty, the proportioning devices are within zero tolerance, and the discharge gates are closed. The interlock shall permit no part of the batch to be discharged until all aggregate hoppers and the cement and supplementary cementitious material hoppers or the cement plus supplementary cementitious material hopper are charged with weights that are within the tolerances specified in Section 90-5.02, "Proportioning Devices."

• If interlocks are required for cement and supplementary cementitious material charging mechanisms and cement and supplementary cementitious material are weighed cumulatively, their charging mechanisms shall be interlocked to prevent the introduction of mineral admixture until the weight of cement in the cement weigh hopper is within the tolerances specified in Section 90-5.02, "Proportioning Devices."

• If concrete is completely mixed in stationary paving mixers, the supplementary cementitious materials shall be weighed in a separate weigh hopper and the supplementary cementitious material and cement shall be introduced simultaneously into the mixer proportionately with the aggregate. If the Contractor provides certification that the stationary mixer is capable of mixing the cement, supplementary cementitious material, aggregates, and water uniformly before discharge, weighing the supplementary cementitious material cumulatively with the cement is permitted. Certification shall contain the following:

- A. Test results for 2 compressive strength test cylinders of concrete taken within the first one-third and 2 compressive strength test cylinders of concrete taken within the last one-third of the concrete discharged from a single batch from the stationary paving mixer. Strength tests and cylinder preparation will be in conformance with the provisions of Section 90-9, "Compressive Strength";
- B. Calculations demonstrating that the difference in the averages of 2 compressive strengths taken in the first one-third is no greater than 7.5 percent different than the averages of 2 compressive strengths taken in the last one-third of the concrete discharged from a single batch from the stationary paving mixer. Strength tests and cylinder preparation will be in conformance with the provisions of Section 90-9, "Compressive Strength;" and
- C. The mixer rotation speed and time of mixing before discharge that are required to produce a mix that meets the requirements above.

• The discharge gate on the cement and supplementary cementitious material hoppers or the cement plus supplementary cementitious material hopper shall be designed to permit regulating the flow of cement, supplementary cementitious material, or cement plus supplementary cementitious material into the aggregate as directed by the Engineer.

• If separate weigh boxes are used for each size of aggregate, the discharge gates shall permit regulating the flow of each size of aggregate as directed by the Engineer.

• Material discharged from the several bins shall be controlled by gates or by mechanical conveyors. The means of withdrawal from the several bins, and of discharge from the weigh box, shall be interlocked so that not more than one bin can discharge at a time, and so that the weigh box cannot be tripped until the required quantity from each of the several bins has been deposited therein. Should a separate weigh box be used for each size of aggregate, all may be operated and discharged simultaneously.

• If the discharge from the several bins is controlled by gates, each gate shall be actuated automatically so that the required mass is discharged into the weigh box, after which the gate shall automatically close and lock.

- The automatic weighing system shall be designed so that all proportions required may be set on the weighing controller at the same time.

90-6 MIXING AND TRANSPORTING

90-6.01 GENERAL

- Concrete shall be mixed in mechanically operated mixers, except that when permitted by the Engineer, batches not exceeding 1/3 cubic yard may be mixed by hand methods in conformance with the provisions in Section 90-6.05, "Hand-Mixing."
- Equipment having components made of aluminum or magnesium alloys that would have contact with plastic concrete during mixing, transporting, or pumping of portland cement concrete shall not be used.
- Concrete shall be homogeneous and thoroughly mixed, and there shall be no lumps or evidence of undispersed cementitious material.
- Uniformity of concrete mixtures will be determined by differences in penetration as determined by California Test 533, or slump as determined by ASTM Designation: C 143, and by variations in the proportion of coarse aggregate as determined by California Test 529.
- When the mix design specifies a penetration value, the difference in penetration, determined by comparing penetration tests on 2 samples of mixed concrete from the same batch or truck mixer load, shall not exceed 1/2-inch. When the mix design specifies a slump value, the difference in slump, determined by comparing slump tests on 2 samples of mixed concrete from the same batch or truck mixer load, shall not exceed the values given in the table below. Variation in the proportion of coarse aggregate will be determined by comparing the results of tests of 2 samples of mixed concrete from the same batch or truck mixer load and the difference between the 2 results shall not exceed 170 pounds per cubic yard of concrete.

Average Slump	Maximum Permissible Difference
Less than 4"	1"
4" to 6"	1 1/2"
Greater than 6" to 9"	2"

- The Contractor shall furnish samples of the freshly mixed concrete and provide satisfactory facilities for obtaining the samples.

90-6.02 MACHINE MIXING

- Concrete mixers may be of the revolving drum or the revolving blade type, and the mixing drum or blades shall be operated uniformly at the mixing speed recommended by the manufacturer. Mixers and agitators that have an accumulation of hard concrete or mortar shall not be used.
- The temperature of mixed concrete, immediately before placing, shall be not less than 50° F or more than 90° F. Aggregates and water shall be heated or cooled as necessary to produce concrete within these temperature limits. Neither aggregates nor mixing water shall be heated to exceed 150° F. If ice is used to cool the concrete, discharge of the mixer will not be permitted until all ice is melted.
- The batch shall be so charged into the mixer that some water will enter in advance of cementitious materials and aggregates. All water shall be in the drum by the end of the first one-fourth of the specified mixing time.
- Cementitious materials shall be batched and charged into the mixer by means that will not result either in loss of cementitious materials due to the effect of wind, in accumulation of cementitious materials on surfaces of conveyors or hoppers, or in other conditions that reduce or vary the required quantity of cementitious material in the concrete mixture.
- Paving and stationary mixers shall be operated with an automatic timing device. The timing device and discharge mechanism shall be interlocked so that during normal operation no part of the batch will be discharged until the specified mixing time has elapsed.
- The total elapsed time between the intermingling of damp aggregates and all cementitious materials and the start of mixing shall not exceed 30 minutes.
- The size of batch shall not exceed the manufacturer's guaranteed capacity.
- When producing concrete for pavement or base, suitable batch counters shall be installed and maintained in good operating condition at job site batching plants and stationary mixers. The batch counters shall indicate the exact number of batches proportioned and mixed.
- Concrete shall be mixed and delivered to the job site by means of one of the following combinations of operations:

- A. Mixed completely in a stationary mixer and the mixed concrete transported to the point of delivery in truck agitators or in nonagitating hauling equipment (central-mixed concrete).
- B. Mixed partially in a stationary mixer, and the mixing completed in a truck mixer (shrink-mixed concrete).
- C. Mixed completely in a truck mixer (transit-mixed concrete).
- D. Mixed completely in a paving mixer.

- Agitators may be truck mixers operating at agitating speed or truck agitators. Each mixer and agitator shall have attached thereto in a prominent place a metal plate or plates on which is plainly marked the various uses for which the equipment is designed, the manufacturer's guaranteed capacity of the drum or container in terms of the volume of mixed concrete and the speed of rotation of the mixing drum or blades.

- Truck mixers shall be equipped with electrically or mechanically actuated revolution counters by which the number of revolutions of the drum or blades may readily be verified.

- When shrink-mixed concrete is furnished, concrete that has been partially mixed at a central plant shall be transferred to a truck mixer and all requirements for transit-mixed concrete shall apply. No credit in the number of revolutions at mixing speed will be allowed for partial mixing in a central plant.

90-6.03 TRANSPORTING MIXED CONCRETE

- Mixed concrete may be transported to the delivery point in truck agitators or truck mixers operating at the speed designated by the manufacturer of the equipment as agitating speed, or in non-agitating hauling equipment, provided the consistency and workability of the mixed concrete upon discharge at the delivery point is suitable for adequate placement and consolidation in place, and provided the mixed concrete after hauling to the delivery point conforms to the provisions in Section 90-6.01, "General."

- Truck agitators shall be loaded not to exceed the manufacturer's guaranteed capacity and shall maintain the mixed concrete in a thoroughly mixed and uniform mass during hauling.

- Bodies of nonagitating hauling equipment shall be constructed so that leakage of the concrete mix, or any part thereof, will not occur at any time.

- Concrete hauled in open-top vehicles shall be protected during hauling against rain or against exposure to the sun for more than 20 minutes when the ambient temperature exceeds 75° F.

- No additional mixing water shall be incorporated into the concrete during hauling or after arrival at the delivery point, unless authorized by the Engineer. If the Engineer authorizes additional water to be incorporated into the concrete, the drum shall be revolved not less than 30 revolutions at mixing speed after the water is added and before discharge is commenced.

- The rate of discharge of mixed concrete from truck mixer-agitators shall be controlled by the speed of rotation of the drum in the discharge direction with the discharge gate fully open.

- If a truck mixer or agitator is used for transporting concrete to the delivery point, discharge shall be completed within 1.5 hours or before 250 revolutions of the drum or blades, whichever occurs first, after the introduction of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or if the temperature of the concrete is 85° F or above, the time allowed may be less than 1.5 hours. If an admixture is used to retard the set time, the temperature of the concrete shall not exceed 85° F, the time limit shall be 2 hours, and the revolution limitation shall be 300.

- If nonagitating hauling equipment is used for transporting concrete to the delivery point, discharge shall be completed within one hour after the addition of the cement to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 85° F or above, the time between the introduction of cement to the aggregates and discharge shall not exceed 45 minutes.

- Each load of concrete delivered at the job site shall be accompanied by a weighmaster certificate showing the mix identification number, nonrepeating load number, date and time at which the materials were batched, the total amount of water added to the load, and for transit-mixed concrete, the reading of the revolution counter at the time the truck mixer is charged with cement. This weighmaster certificate shall also show the actual scale weights (pounds) for the ingredients batched. Theoretical or target batch weights shall not be used as a substitute for actual scale weights.

- Weighmaster certificates shall be provided in printed form, or if approved by the Engineer, the data may be submitted in electronic media. Electronic media shall be presented in a tab-delimited format on a 3 1/2-inch diskette with a capacity of at least 1.4 megabytes. Captured data, for the ingredients represented by each batch shall be "line feed, carriage return" (LFCR) and "one line, separate record" with allowances for sufficient fields to satisfy the amount of data required by these specifications.

- The Contractor may furnish a weighmaster certificate accompanied by a separate certificate that lists the actual batch weights or measurements for a load of concrete provided that both certificates are imprinted with the same nonrepeating load number that is unique to the contract and delivered to the jobsite with the load.

- Weighmaster certificates furnished by the Contractor shall conform to the provisions in Section 9-1.01, "Measurement of Quantities."

90-6.04 TIME OR AMOUNT OF MIXING

- Mixing of concrete in paving or stationary mixers shall continue for the required mixing time after all ingredients, except water and admixture, if added with the water, are in the mixing compartment of the mixer before any part of the batch is released. Transfer time in multiple drum mixers shall not be counted as part of the required mixing time.
- The required mixing time, in paving or stationary mixers, of concrete used for concrete structures, except minor structures, shall be not less than 90 seconds or more than 5 minutes, except that when directed by the Engineer in writing, the requirements of the following paragraph shall apply.
 - The required mixing time, in paving or stationary mixers, except as provided in the preceding paragraph, shall be not less than 50 seconds or more than 5 minutes.
 - The minimum required revolutions at the mixing speed for transit-mixed concrete shall not be less than that recommended by the mixer manufacturer, but in no case shall the number of revolutions be less than that required to consistently produce concrete conforming to the provisions for uniformity in Section 90-6.01, "General."
 - When a high range water-reducing admixture is added to the concrete at the job site, the total number of revolutions shall not exceed 300.

90-6.05 HAND-MIXING

- Hand-mixed concrete shall be made in batches of not more than 1/3 cubic yard and shall be mixed on a watertight, level platform. The proper amount of coarse aggregate shall be measured in measuring boxes and spread on the platform and the fine aggregate shall be spread on this layer, the 2 layers being not more than one foot in total depth. On this mixture shall be spread the dry cementitious materials and the whole mass turned no fewer than 2 times dry; then sufficient clean water shall be added, evenly distributed, and the whole mass again turned no fewer than 3 times, not including placing in the carriers or forms.

90-6.06 AMOUNT OF WATER AND PENETRATION

- The amount of water used in concrete mixes shall be regulated so that the penetration of the concrete as determined by California Test 533 or the slump of the concrete as determined by ASTM Designation: C 143 is within the nominal values shown in the following table. When the penetration or slump of the concrete is found to exceed the nominal values listed, the mixture of subsequent batches shall be adjusted to reduce the penetration or slump to a value within the nominal range shown. Batches of concrete with a penetration or slump exceeding the maximum values listed shall not be used in the work. If Type F or Type G chemical admixtures are added to the mix, the penetration requirements shall not apply and the slump shall not exceed 9 inches after the chemical admixtures are added.

Type of Work	Nominal		Maximum	
	Penetration (inches)	Slump (inches)	Penetration (inches)	Slump (inches)
Concrete Pavement	0 - 1	—	1 1/2	—
Non-reinforced concrete facilities	0 - 1 1/2	—	2	—
Reinforced concrete structures				
Sections over 12 inches thick	0 - 1 1/2	—	2 1/2	—
Sections 12 inches thick or less	0 - 2	—	3	—
Concrete placed under water	—	6 - 8	—	9
Cast-in-place concrete piles	2 1/2 - 3 1/2	5 - 7	4	8

- The amount of free water used in concrete shall not exceed 310 pounds per cubic yard, plus 20 pounds for each required 100 pounds of cementitious material in excess of 550 pounds per cubic yard.
- The term free water is defined as the total water in the mixture minus the water absorbed by the aggregates in reaching a saturated surface-dry condition.
- If there are adverse or difficult conditions that affect the placing of concrete, the above specified penetration and free water content limitations may be exceeded providing the Contractor is granted permission by the Engineer in writing to increase the cementitious material content per cubic yard of concrete. The increase in water and cementitious material shall be at a ratio not to exceed 30 pounds of water per added 100 pounds of cementitious material per cubic yard. Full compensation for additional cementitious material and water added under these conditions shall be considered as included in the contract price paid for the concrete work involved and no additional compensation will be allowed therefor.

- The equipment for supplying water to the mixer shall be constructed and arranged so that the amount of water added can be measured accurately. Any method of discharging water into the mixer for a batch shall be accurate within 1.5 percent of the quantity of water required to be added to the mix for any position of the mixer. Tanks used to measure water shall be designed so that water cannot enter while water is being discharged into the mixer and discharge into the mixer shall be made rapidly in one operation without dribbling. All equipment shall be arranged so as to permit checking the amount of water delivered by discharging into measured containers.

90-7 CURING CONCRETE

90-7.01 METHODS OF CURING

- Newly placed concrete shall be cured by the methods specified in this Section 90-7.01 and the special provisions.

90-7.01A WATER METHOD

- The concrete shall be kept continuously wet by the application of water for a minimum curing period of 7 days after the concrete has been placed.
- Cotton mats, rugs, carpets, or earth or sand blankets may be used as a curing medium to retain the moisture during the curing period.
- If a curing medium consisting of cotton mats, rugs, carpets, polyethylene sheeting, polyethylene sheeting on burlap, or earth or sand blankets is to be used to retain the moisture, the entire surface of the concrete shall be kept damp by applying water with a nozzle that so atomizes the flow that a mist and not a spray is formed, until the surface of the concrete is covered with the curing medium. The moisture from the nozzle shall not be applied under pressure directly upon the concrete and shall not be allowed to accumulate on the concrete in a quantity sufficient to cause a flow or wash the surface. At the expiration of the curing period, the concrete surfaces shall be cleared of all curing media.
- At the option of the Contractor, a curing medium consisting of white opaque polyethylene sheeting extruded onto burlap may be used to cure concrete structures. The polyethylene sheeting shall have a minimum thickness of 4-mil, and shall be extruded onto 10-ounce burlap.
- At the option of the Contractor, a curing medium consisting of polyethylene sheeting may be used to cure concrete columns. The polyethylene sheeting shall have a minimum thickness of 10-mil achieved in a single layer of material.
- If the Contractor chooses to use polyethylene sheeting or polyethylene sheeting on burlap as a curing medium, these media and any joints therein shall be secured as necessary to provide moisture retention and shall be within 3 inches of the concrete at all points along the surface being cured. When these media are used, the temperature of the concrete shall be monitored during curing. If the temperature of the concrete cannot be maintained below 140° F, use of these curing media shall be disallowed.
- When concrete bridge decks and flat slabs are to be cured without the use of a curing medium, the entire surface of the bridge deck or slab shall be kept damp by the application of water with an atomizing nozzle as specified above, until the concrete has set, after which the entire surface of the concrete shall be sprinkled continuously with water for a period of not less than 7 days.

90-7.01B CURING COMPOUND METHOD

- Surfaces of the concrete that are exposed to the air shall be sprayed uniformly with a curing compound.
- Curing compounds to be used shall be as follows:
 1. Pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 2, Class B, except the resin type shall be poly-alpha-methylstyrene.
 2. Pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 2, Class B.
 3. Pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 2, Class A.
 4. Nonpigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 1, Class B.
 5. Nonpigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 1, Class A.
 6. Nonpigmented curing compound with fugitive dye conforming to the requirements in ASTM Designation: C 309, Type 1-D, Class A.
- The infrared scan for the dried vehicle from curing compound (1) shall match the infrared scan on file at the Transportation Laboratory.
- The loss of water for each type of curing compound, when tested in conformance with the requirements in California Test 534, shall not be more than 0.28-pounds per square yard in 24 hours.
- The curing compound to be used will be specified elsewhere in these specifications or in the special provisions.
- If the use of curing compound is required or permitted elsewhere in these specifications or in the special provisions and no specific kind is specified, any of the curing compounds listed above may be used.

- Curing compound shall be applied at a nominal rate of one gallon per 150 square feet, unless otherwise specified.
- At any point, the application rate shall be within ± 50 square feet per gallon of the nominal rate specified, and the average application rate shall be within ± 25 square feet per gallon of the nominal rate specified when tested in conformance with the requirements in California Test 535. Runs, sags, thin areas, skips, or holidays in the applied curing compound shall be evidence that the application is not satisfactory.
- Curing compounds shall be applied using power operated spray equipment. The power operated spraying equipment shall be equipped with an operational pressure gage and a means of controlling the pressure. Hand spraying of small and irregular areas that are not reasonably accessible to mechanical spraying equipment, in the opinion of the Engineer, may be permitted.
- The curing compound shall be applied to the concrete following the surface finishing operation, immediately before the moisture sheen disappears from the surface, but before any drying shrinkage or craze cracks begin to appear. In the event of any drying or cracking of the surface, application of water with an atomizing nozzle as specified in Section 90-7.01A, "Water Method," shall be started immediately and shall be continued until application of the compound is resumed or started; however, the compound shall not be applied over any resulting freestanding water. Should the film of compound be damaged from any cause before the expiration of 7 days after the concrete is placed in the case of structures and 72 hours in the case of pavement, the damaged portion shall be repaired immediately with additional compound.
- At the time of use, compounds containing pigments shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. A paddle shall be used to loosen all settled pigment from the bottom of the container, and a power driven agitator shall be used to disperse the pigment uniformly throughout the vehicle.
- Agitation shall not introduce air or other foreign substance into the curing compound.
- The manufacturer shall include in the curing compound the necessary additives for control of sagging, pigment settling, leveling, de-emulsification, or other requisite qualities of a satisfactory working material. Pigmented curing compounds shall be manufactured so that the pigment does not settle badly, does not cake or thicken in the container, and does not become granular or curdled. Settlement of pigment shall be a thoroughly wetted, soft, mushy mass permitting the complete and easy vertical penetration of a paddle. Settled pigment shall be easily redispersed, with minimum resistance to the sideways manual motion of the paddle across the bottom of the container, to form a smooth uniform product of the proper consistency.
- Curing compounds shall remain sprayable at temperatures above 40° F and shall not be diluted or altered after manufacture.
- The curing compound shall be packaged in clean 274-gallon totes, 55-gallon barrels or 5-gallon pails shall be supplied from a suitable storage tank located at the jobsite. The containers shall comply with "Title 49, Code of Federal Regulations, Hazardous Materials Regulations." The 274-gallon totes and the 55-gallon barrels shall have removable lids and airtight fasteners. The 5-gallon pails shall be round and have standard full open head and bail. Lids with bungholes will not be permitted. Settling or separation of solids in containers, except tanks, must be completely redispersed with low speed mixing prior to use, in conformance with these specifications and the manufacturer's recommendations. Mixing shall be accomplished either manually by use of a paddle or by use of a mixing blade driven by a drill motor, at low speed. Mixing blades shall be the type used for mixing paint. On-site storage tanks shall be kept clean and free of contaminants. Each tank shall have a permanent system designed to completely redisperse settled material without introducing air or other foreign substances.
- Steel containers and lids shall be lined with a coating that will prevent destructive action by the compound or chemical agents in the air space above the compound. The coating shall not come off the container or lid as skins. Containers shall be filled in a manner that will prevent skinning. Plastic containers shall not react with the compound.
- Each container shall be labeled with the manufacturer's name, kind of curing compound, batch number, volume, date of manufacture, and volatile organic compound (VOC) content. The label shall also warn that the curing compound containing pigment shall be well stirred before use. Precautions concerning the handling and the application of curing compound shall be shown on the label of the curing compound containers in conformance with the Construction Safety Orders and General Industry Safety Orders of the State.
- Containers of curing compound shall be labeled to indicate that the contents fully comply with the rules and regulations concerning air pollution control in the State.
- When the curing compound is shipped in tanks or tank trucks, a shipping invoice shall accompany each load. The invoice shall contain the same information as that required herein for container labels.
- Curing compound will be sampled by the Engineer at the source of supply, at the job site, or at both locations.
- Curing compound shall be formulated so as to maintain the specified properties for a minimum of one year. The Engineer may require additional testing before use to determine compliance with these specifications if the compound has not been used within one year or whenever the Engineer has reason to believe the compound is no longer satisfactory.
- Tests will be conducted in conformance with the latest ASTM test methods and methods in use by the Transportation Laboratory.

90-7.01C WATERPROOF MEMBRANE METHOD

- The exposed finished surfaces of concrete shall be sprayed with water, using a nozzle that so atomizes the flow that a mist and not a spray is formed, until the concrete has set, after which the curing membrane, shall be placed. The curing membrane shall remain in place for a period of not less than 72 hours.
- Sheeting material for curing concrete shall conform to the requirements in AASHTO Designation: M 171 for white reflective materials.
- The sheeting material shall be fabricated into sheets of such width as to provide a complete cover for the entire concrete surface. Joints in the sheets shall be securely cemented together in such a manner as to provide a waterproof joint. The joint seams shall have a minimum lap of 0.33-foot.
- The sheets shall be securely weighted down by placing a bank of earth on the edges of the sheets or by other means satisfactory to the Engineer.
- Should any portion of the sheets be broken or damaged before the expiration of 72 hours after being placed, the broken or damaged portions shall be immediately repaired with new sheets properly cemented into place.
- Sections of membrane that have lost their waterproof qualities or have been damaged to such an extent as to render them unfit for curing the concrete shall not be used.

90-7.01D FORMS-IN-PLACE METHOD

- Formed surfaces of concrete may be cured by retaining the forms in place. The forms shall remain in place for a minimum period of 7 days after the concrete has been placed, except that for members over 20 inches in least dimension the forms shall remain in place for a minimum period of 5 days.
- Joints in the forms and the joints between the end of forms and concrete shall be kept moisture tight during the curing period. Cracks in the forms and cracks between the forms and the concrete shall be resealed by methods subject to the approval of the Engineer.

90-7.02 CURING PAVEMENT

- The entire exposed area of the pavement, including edges, shall be cured by the waterproof membrane method, or curing compound method using curing compound (1) or (2) as the Contractor may elect. Should the side forms be removed before the expiration of 72 hours following the start of curing, the exposed pavement edges shall also be cured. If the pavement is cured by means of the curing compound method, the sawcut and all portions of the curing compound that have been disturbed by sawing operations shall be restored by spraying with additional curing compound.
- Curing shall commence as soon as the finishing process provided in Section 40-1.10, "Final Finishing," has been completed. The method selected shall conform to the provisions in Section 90-7.01, "Methods of Curing."
- When the curing compound method is used, the compound shall be applied to the entire pavement surface by mechanical sprayers. Spraying equipment shall be of the fully atomizing type equipped with a tank agitator that provides for continual agitation of the curing compound during the time of application. The spray shall be adequately protected against wind, and the nozzles shall be so oriented or moved mechanically transversely as to result in the minimum specified rate of coverage being applied uniformly on exposed faces. Hand spraying of small and irregular areas, and areas inaccessible to mechanical spraying equipment, in the opinion of the Engineer, will be permitted. When the ambient air temperature is above 60° F, the Contractor shall fog the surface of the concrete with a fine spray of water as specified in Section 90-7.01A, "Water Method." The surface of the pavement shall be kept moist between the hours of 10:00 a.m. and 4:30 p.m. on the day the concrete is placed. However, the fogging done after the curing compound has been applied shall not begin until the compound has set sufficiently to prevent displacement. Fogging shall be discontinued if ordered in writing by the Engineer.

90-7.03 CURING STRUCTURES

- Newly placed concrete for cast-in-place structures, other than highway bridge decks, shall be cured by the water method, the forms-in-place method, or, as permitted herein, by the curing compound method, in conformance with the provisions in Section 90-7.01, "Methods of Curing."
- The curing compound method using a pigmented curing compound may be used on concrete surfaces of construction joints, surfaces that are to be buried underground, and surfaces where only ordinary surface finish is to be applied and on which a uniform color is not required and that will not be visible from a public traveled way. If the Contractor elects to use the curing compound method on the bottom slab of box girder spans, the curing compound shall be curing compound (1).
- The top surface of highway bridge decks shall be cured by both the curing compound method and the water method. The curing compound shall be curing compound (1).
- Concrete surfaces of minor structures, as defined in Section 51-1.02, "Minor Structures," shall be cured by the water method, the forms-in-place method or the curing compound method.

- When deemed necessary by the Engineer during periods of hot weather, water shall be applied to concrete surfaces being cured by the curing compound method or by the forms-in-place method, until the Engineer determines that a cooling effect is no longer required. Application of water for this purpose will be paid for as extra work as provided in Section 4-1.03D, "Extra Work."

90-7.04 CURING PRECAST CONCRETE MEMBERS

- Precast concrete members shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing." Curing shall be provided for the minimum time specified for each method or until the concrete reaches its design strength, whichever is less. Steam curing may also be used for precast members and shall conform to the following provisions:

- A. After placement of the concrete, members shall be held for a minimum 4-hour presteaming period. If the ambient air temperature is below 50° F, steam shall be applied during the presteaming period to hold the air surrounding the member at a temperature between 50° F and 90° F.
- B. To prevent moisture loss on exposed surfaces during the presteaming period, members shall be covered as soon as possible after casting or the exposed surfaces shall be kept wet by fog spray or wet blankets.
- C. Enclosures for steam curing shall allow free circulation of steam about the member and shall be constructed to contain the live steam with a minimum moisture loss. The use of tarpaulins or similar flexible covers will be permitted, provided they are kept in good repair and secured in such a manner as to prevent the loss of steam and moisture.
- D. Steam at the jets shall be at low pressure and in a saturated condition. Steam jets shall not impinge directly on the concrete, test cylinders, or forms. During application of the steam, the temperature rise within the enclosure shall not exceed 40° F per hour. The curing temperature throughout the enclosure shall not exceed 150° F and shall be maintained at a constant level for a sufficient time necessary to develop the required transfer strength. Control cylinders shall be covered to prevent moisture loss and shall be placed in a location where temperature is representative of the average temperature of the enclosure.
- E. Temperature recording devices that will provide an accurate, continuous, permanent record of the curing temperature shall be provided. A minimum of one temperature recording device per 200 feet of continuous bed length will be required for checking temperature.
- F. Members in pretension beds shall be detensioned immediately after the termination of steam curing while the concrete and forms are still warm, or the temperature under the enclosure shall be maintained above 60° F until the stress is transferred to the concrete.
- G. Curing of precast concrete will be considered completed after termination of the steam curing cycle.

90-7.05 CURING PRECAST PRESTRESSED CONCRETE PILES

- Newly placed concrete for precast prestressed concrete piles shall be cured in conformance with the provisions in Section 90-7.04, "Curing Precast Concrete Members," except that piles in a corrosive environment shall be cured as follows:
 - A. Piles shall be either steam cured or water cured. If water curing is used, the piles shall be kept continuously wet by the application of water in conformance with the provisions in Section 90-7.01A, "Water Method."
 - B. If steam curing is used, the steam curing provisions in Section 90-7.04, "Curing Precast Concrete Members," shall apply except that the piles shall be kept continuously wet for their entire length for a period of not less than 3 days, including the holding and steam curing periods.

90-7.06 CURING SLOPE PROTECTION

- Concrete slope protection shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing."
- Concreted-rock slope protection shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing," with a blanket of earth kept wet for 72 hours, or by sprinkling with a fine spray of water every 2 hours during the daytime for a period of 3 days.

90-7.07 CURING MISCELLANEOUS CONCRETE WORK

- Exposed surfaces of curbs shall be cured by pigmented curing compounds as specified in Section 90-7.01B, "Curing Compound Method."
- Concrete sidewalks, gutter depressions, island paving, curb ramps, driveways, and other miscellaneous concrete areas shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing."

- Shotcrete shall be cured for at least 72 hours by spraying with water, by a moist earth blanket, or by any of the methods provided in Section 90-7.01, "Methods of Curing."
- Mortar and grout shall be cured by keeping the surface damp for 3 days.
- After placing, the exposed surfaces of sign structure foundations, including pedestal portions, if constructed, shall be cured for at least 72 hours by spraying with water, by a moist earth blanket, or by any of the methods provided in Section 90-7.01, "Methods of Curing."

90-8 PROTECTING CONCRETE

90-8.01 GENERAL

- In addition to the provisions in Section 7-1.16, "Contractor's Responsibility for the Work and Materials," the Contractor shall protect concrete as provided in this Section 90-8. If required by the Engineer, the Contractor shall submit a written outline of the proposed methods for protecting the concrete.
 - The Contractor shall protect concrete from damage from any cause, which shall include, but not be limited to: rain, heat, cold, wind, Contractor's actions, and actions of others.
 - Concrete shall not be placed on frozen or ice-coated ground or subgrade nor on ice-coated forms, reinforcing steel, structural steel, conduits, precast members, or construction joints.
 - Under rainy conditions, placing of concrete shall be stopped before the quantity of surface water is sufficient to damage surface mortar or cause a flow or wash of the concrete surface, unless the Contractor provides adequate protection against damage.
 - Concrete that has been frozen or damaged by other causes, as determined by the Engineer, shall be removed and replaced by the Contractor at the Contractor's expense.

90-8.02 PROTECTING CONCRETE STRUCTURES

- Structure concrete and shotcrete used as structure concrete shall be maintained at a temperature of not less than 45° F for 72 hours after placing and at not less than 40° F for an additional 4 days.

90-8.03 PROTECTING CONCRETE PAVEMENT

- Pavement concrete shall be maintained at a temperature of not less than 40° F for 72 hours.
- Except as provided in Section 7-1.08, "Public Convenience," the Contractor shall protect concrete pavement against construction and other activities that abrade, scar, discolor, reduce texture depth, lower coefficient of friction, or otherwise damage the surface. Stockpiling, drifting, or excessive spillage of soil, gravel, petroleum products, and concrete or asphalt mixes on the surface of concrete pavement is prohibited unless otherwise specified in these specifications, the special provisions or permitted by the Engineer.
 - If ordered by the Engineer or shown on the plans or specified in the special provisions, pavement crossings shall be constructed for the convenience of public traffic. The material and work necessary for the construction of the crossings, and their subsequent removal and disposal, will be paid for at the contract unit prices for the items of work involved and if there are no contract items for the work involved, payment for pavement crossings will be made by extra work as provided in Section 4-1.03D, "Extra Work." Where public traffic will be required to cross over the new pavement, Type III portland cement may be used in concrete, if permitted in writing by the Engineer. The pavement may be opened to traffic as soon as the concrete has developed a modulus of rupture of 550 pounds per square inch. The modulus of rupture will be determined by California Test 523.
 - No traffic or Contractor's equipment, except as hereinafter provided, will be permitted on the pavement before a period of 10 days has elapsed after the concrete has been placed, nor before the concrete has developed a modulus of rupture of at least 550 pounds per square inch. Concrete that fails to attain a modulus of rupture of 550 pounds per square inch within 10 days shall not be opened to traffic until directed by the Engineer.
 - Equipment for sawing weakened plane joints will be permitted on the pavement as specified in Section 40-1.08B, "Weakened Plane Joints."
 - When requested in writing by the Contractor, the tracks on one side of paving equipment will be permitted on the pavement after a modulus of rupture of 350 pounds per square inch has been attained, provided that:
 - A. Unit pressure exerted on the pavement by the paver shall not exceed 20 pounds per square inch;
 - B. Tracks with cleats, grousers, or similar protuberances shall be modified or shall travel on planks or equivalent protective material, so that the pavement is not damaged; and
 - C. No part of the track shall be closer than one foot from the edge of pavement.
- In case of visible cracking of, or other damage to the pavement, operation of the paving equipment on the pavement shall be immediately discontinued.

- Damage to the pavement resulting from early use of pavement by the Contractor's equipment as provided above shall be repaired by the Contractor.
- The State will furnish the molds and machines for testing the concrete for modulus of rupture, and the Contractor, at the Contractor's expense, shall furnish the material and whatever labor the Engineer may require.

90-9 COMPRESSIVE STRENGTH

90-9.01 GENERAL

- Concrete compressive strength requirements consist of a minimum strength that shall be attained before various loads or stresses are applied to the concrete and, for concrete designated by strength, a minimum strength at the age of 28 days or at the age otherwise allowed in Section 90-1.01, "Description." The various strengths required are specified in these specifications or the special provisions or are shown on the plans.
- The compressive strength of concrete will be determined from test cylinders that have been fabricated from concrete sampled in conformance with the requirements of California Test 539. Test cylinders will be molded and initially field cured in conformance with California Test 540. Test cylinders will be cured and tested after receipt at the testing laboratory in conformance with the requirements of California Test 521. A strength test shall consist of the average strength of 2 cylinders fabricated from material taken from a single load of concrete, except that, if any cylinder should show evidence of improper sampling, molding, or testing, that cylinder shall be discarded and the strength test shall consist of the strength of the remaining cylinder.
- When concrete compressive strength is specified as a prerequisite to applying loads or stresses to a concrete structure or member, test cylinders for other than steam cured concrete will be cured in conformance with Method 1 of California Test 540. The compressive strength of concrete determined for these purposes will be evaluated on the basis of individual tests.
- When concrete is designated by 28-day compressive strength rather than by cementitious material content, the concrete strength to be used as a basis for acceptance of other than steam cured concrete will be determined from cylinders cured in conformance with Method 1 of California Test 540. If the result of a single compressive strength test at the maximum age specified or allowed is below the specified strength but is 95 percent or more of the specified strength, the Contractor shall make corrective changes, subject to approval of the Engineer, in the mix proportions or in the concrete fabrication procedures, before placing additional concrete, and shall pay to the State \$10 for each in-place cubic yard of concrete represented by the deficient test. If the result of a single compressive strength test at the maximum age specified or allowed is below 95 percent of the specified strength, but is 85 percent or more of the specified strength, the Contractor shall make the corrective changes specified above, and shall pay to the State \$15 for each in-place cubic yard of concrete represented by the deficient test. In addition, such corrective changes shall be made when the compressive strength of concrete tested at 7 days indicates, in the judgment of the Engineer, that the concrete will not attain the required compressive strength at the maximum age specified or allowed. Concrete represented by a single test that indicates a compressive strength of less than 85 percent of the specified 28-day compressive strength will be rejected in conformance with the provisions in Section 6-1.04, "Defective Materials."
- If the test result indicates that the compressive strength at the maximum curing age specified or allowed is below the specified strength, but is 85 percent or more of the specified strength, payments to the State as required above shall be made, unless the Contractor, at the Contractor's expense, obtains and submits evidence acceptable to the Engineer that the strength of the concrete placed in the work meets or exceeds the specified 28-day compressive strength. If the test result indicates a compressive strength at the maximum curing age specified or allowed below 85 percent, the concrete represented by that test will be rejected, unless the Contractor, at the Contractor's expense, obtains and submits evidence acceptable to the Engineer that the strength and quality of the concrete placed in the work are acceptable. If the evidence consists of tests made on cores taken from the work, the cores shall be obtained and tested in conformance with the requirements in ASTM Designation: C 42.
- No single compressive strength test shall represent more than 320 cubic yards.
- If a precast concrete member is steam cured, the compressive strength of the concrete will be determined from test cylinders that have been handled and stored in conformance with Method 3 of California Test 540. The compressive strength of steam cured concrete will be evaluated on the basis of individual tests representing specific portions of production. If the concrete is designated by 28-day compressive strength rather than by cementitious material content, the concrete shall be considered to be acceptable whenever its compressive strength reaches the specified 28-day compressive strength provided that strength is reached in not more than the maximum number of days specified or allowed after the member is cast.
- When concrete is specified by compressive strength, prequalification of materials, mix proportions, mixing equipment, and procedures proposed for use will be required prior to placement of the concrete. Prequalification shall be accomplished by the submission of acceptable certified test data or trial batch reports by the Contractor. Prequalification data shall be based on the use of materials, mix proportions, mixing equipment, procedures, and size of batch proposed for use in the work.

- Certified test data, in order to be acceptable, shall indicate that not less than 90 percent of at least 20 consecutive tests exceed the specified strength at the maximum number of cure days specified or allowed, and none of those tests are less than 95 percent of specified strength. Strength tests included in the data shall be the most recent tests made on concrete of the proposed mix design and all shall have been made within one year of the proposed use of the concrete.

- Trial batch test reports, in order to be acceptable, shall indicate that the average compressive strength of 5 consecutive concrete cylinders, taken from a single batch, at not more than 28 days (or the maximum age allowed) after molding shall be at least 580 pounds per square inch greater than the specified 28-day compressive strength, and no individual cylinder shall have a strength less than the specified strength at the maximum age specified or allowed. Data contained in the report shall be from trial batches that were produced within one year of the proposed use of specified strength concrete in the project. Whenever air-entrainment is required, the air content of trial batches shall be equal to or greater than the air content specified for the concrete without reduction due to tolerances.

- Tests shall be performed in conformance with either the appropriate California Test methods or the comparable ASTM test methods. Equipment employed in testing shall be in good condition and shall be properly calibrated. If the tests are performed during the life of the contract, the Engineer shall be notified sufficiently in advance of performing the tests in order to witness the test procedures.

- The certified test data and trial batch test reports shall include the following information:

- A. Date of mixing.
- B. Mixing equipment and procedures used.
- C. The size of batch in cubic yards and the weight, type, and source of all ingredients used.
- D. Penetration or slump (if the concrete will be placed under water or placed in cast-in-place concrete piles) of the concrete.
- E. The air content of the concrete if an air-entraining admixture is used.
- F. The age at time of testing and strength of all concrete cylinders tested.

- Certified test data and trial batch test reports shall be signed by an official of the firm that performed the tests.

- When approved by the Engineer, concrete from trial batches may be used in the work at locations where concrete of a lower quality is required and the concrete will be paid for as the type or class of concrete required at that location.

- After materials, mix proportions, mixing equipment, and procedures for concrete have been prequalified for use, additional prequalification by testing of trial batches will be required prior to making changes that, in the judgment of the Engineer, could result in a strength of concrete below that specified.

- The Contractor's attention is directed to the time required to test trial batches and the Contractor shall be responsible for production of trial batches at a sufficiently early date so that the progress of the work is not delayed.

- When precast concrete members are manufactured at the plant of an established manufacturer of precast concrete members, the mix proportions of the concrete shall be determined by the Contractor, and a trial batch and prequalification of the materials, mix proportions, mixing equipment, and procedures will not be required.

90-10 MINOR CONCRETE

90-10.01 GENERAL

- Concrete for minor structures, slope paving, curbs, sidewalks and other concrete work, when designated as minor concrete on the plans, in the specifications, or in the contract item, shall conform to the provisions specified herein.

- The Engineer, at the Engineer's discretion, will inspect and test the facilities, materials and methods for producing the concrete to ensure that minor concrete of the quality suitable for use in the work is obtained.

90-10.02 MATERIALS

- Minor concrete shall conform to the following requirements:

90-10.02A CEMENTITIOUS MATERIAL

- Cementitious material shall conform to the provisions in Section 90-1.01, "Description."

90-10.02B AGGREGATE

- Aggregate shall be clean and free from deleterious coatings, clay balls, roots, and other extraneous materials.

- Use of crushed concrete or reclaimed aggregate is acceptable only if the aggregate satisfies all aggregate requirements.

- The Contractor shall submit to the Engineer for approval, a grading of the combined aggregate proposed for use in the minor concrete. After acceptance of the grading, aggregate furnished for minor concrete shall conform to that grading, unless a change is authorized in writing by the Engineer.

- The Engineer may require the Contractor to furnish periodic test reports of the aggregate grading furnished. The maximum size of aggregate used shall be at the option of the Contractor, but in no case shall the maximum size be larger than 1 1/2-inch or smaller than 3/4-inch.

- The Engineer may waive, in writing, the gradation requirements in this Section 90-10.02B, if, in the Engineer's opinion, the furnishing of the gradation is not necessary for the type or amount of concrete work to be constructed.

90-10.02C WATER

- Water used for washing, mixing, and curing shall be free from oil, salts, and other impurities that would discolor or etch the surface or have an adverse affect on the quality of the concrete.

90-10.02D ADMIXTURES

- The use of admixtures shall conform to the provisions in Section 90-4, "Admixtures."

90-10.03 PRODUCTION

- Cementitious material, water, aggregate, and admixtures shall be stored, proportioned, mixed, transported, and discharged in conformance with recognized standards of good practice that will result in concrete that is thoroughly and uniformly mixed, that is suitable for the use intended, and that conforms to requirements specified herein. Recognized standards of good practice are outlined in various industry publications such as are issued by American Concrete Institute, AASHTO, or the Department.

- The cementitious material content of minor concrete shall conform to the provisions in Section 90-1.01, "Description."

- The amount of water used shall result in a consistency of concrete conforming to the provisions in Section 90-6.06, "Amount of Water and Penetration." Additional mixing water shall not be incorporated into the concrete during hauling or after arrival at the delivery point, unless authorized by the Engineer.

- Discharge of ready-mixed concrete from the transporting vehicle shall be made while the concrete is still plastic and before stiffening occurs. An elapsed time of 1.5 hours (one hour in non-agitating hauling equipment), or more than 250 revolutions of the drum or blades, after the introduction of the cementitious material to the aggregates, or a temperature of concrete of more than 90° F will be considered conditions contributing to the quick stiffening of concrete. The Contractor shall take whatever action is necessary to eliminate quick stiffening, except that the addition of water will not be permitted.

- The required mixing time in stationary mixers shall be not less than 50 seconds or more than 5 minutes.

- The minimum required revolutions at mixing speed for transit-mixed concrete shall be not less than that recommended by the mixer manufacturer, and shall be increased, if necessary, to produce thoroughly and uniformly mixed concrete.

- When a high range water-reducing admixture is added to the concrete at the job site, the total number of revolutions shall not exceed 300.

- Each load of ready-mixed concrete shall be accompanied by a weighmaster certificate that shall be delivered to the Engineer at the discharge location of the concrete, unless otherwise directed by the Engineer. The weighmaster certificate shall be clearly marked with the date and time of day when the load left the batching plant and, if hauled in truck mixers or agitators, the time the mixing cycle started.

- A Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," shall be furnished to the Engineer, prior to placing minor concrete from a source not previously used on the contract, stating that minor concrete to be furnished meets contract requirements, including minimum cementitious material content specified.

90-10.04 CURING MINOR CONCRETE

- Curing minor concrete shall conform to the provisions in Section 90-7, "Curing Concrete."

90-10.05 PROTECTING MINOR CONCRETE

- Protecting minor concrete shall conform to the provisions in Section 90-8, "Protecting Concrete," except the concrete shall be maintained at a temperature of not less than 40° F for 72 hours after placing.

90-10.06 MEASUREMENT AND PAYMENT

- Minor concrete will be measured and paid for in conformance with the provisions specified in the various sections of these specifications covering concrete construction when minor concrete is specified in the specifications, shown on the plans, or indicated by contract item in the Engineer's Estimate.

90-11 MEASUREMENT AND PAYMENT

90-11.01 MEASUREMENT

- Portland cement concrete will be measured in conformance with the provisions specified in the various sections of these specifications covering construction requiring concrete.
- For concrete measured at the mixer, the volume in cubic feet shall be computed as the total weight of the batch in pounds divided by the density of the concrete in pounds per cubic foot. The total weight of the batch shall be calculated as the sum of all materials, including water, entering the batch. The density of the concrete will be determined in conformance with the requirements in California Test 518.

90-11.02 PAYMENT

- Portland cement concrete will be paid for in conformance with the provisions specified in the various sections of these specifications covering construction requiring concrete.
- Full compensation for furnishing and incorporating admixtures required by these specifications or the special provisions will be considered as included in the contract prices paid for the concrete involved and no additional compensation will be allowed therefor.
- Should the Engineer order the Contractor to incorporate any admixtures in the concrete when their use is not required by these specifications or the special provisions, furnishing the admixtures and adding them to the concrete will be paid for as extra work as provided in Section 4-1.03D, "Extra Work."
- Should the Contractor use admixtures in conformance with the provisions in Section 90-4.05, "Optional Use of Chemical Admixtures," or Section 90-4.07, "Optional Use of Air-entraining Admixtures," or should the Contractor request and obtain permission to use other admixtures for the Contractor's benefit, the Contractor shall furnish those admixtures and incorporate them into the concrete at the Contractor's expense and no additional compensation will be allowed therefor.

SECTION 91: PAINT

Issue Date: May 1, 2006

Section 91-3, "Paints for Timber," of the Standard Specifications is amended to read:

91-3 PAINTS FOR TIMBER

91-3.01 WOOD PRIMER, LATEX-BASE

Classification:

- This specification covers a ready-mixed priming paint for use on unpainted wood or exterior woodwork. It shall conform with the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI) for exterior wood primers, and be listed on the Exterior Latex Wood Primer MPI List Number 6.

91-3.02 PAINT; LATEX-BASE FOR EXTERIOR WOOD, WHITE AND TINTS

Classification:

- This specification covers a ready-mixed paint for use on wood surfaces subject to outside exposures. This paint shall conform to the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI) for Paint, Latex, Exterior, and shall be listed on the following MPI Approved Products List:

- A. Exterior Latex, Flat MPI Gloss Level 1, MPI List Number 10.
- B. Exterior Latex, Semi-Gloss, MPI Gloss Level 5, MPI List Number 11.
- C. Exterior Latex, Gloss, MPI Gloss Level 6, MPI List Number 119.

- Unpainted wood shall first be primed with wood primer conforming to the provisions in Section 91-3.01, "Wood Primer, Latex-Base."

Section 91-4, "Miscellaneous Paints," of the Standard Specifications is amended to read:

91-4 MISCELLANEOUS PAINTS

91-4.01 THROUGH 91-4.04 (BLANK)

91-4.05 PAINT; ACRYLIC EMULSION, EXTERIOR WHITE AND LIGHT AND MEDIUM TINTS

Classification:

• This specification covers an acrylic emulsion paint designed for use on exterior masonry. This paint shall conform to the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI) for Paint, Latex, Exterior, and shall be listed on the following MPI Approved Products Lists:

- A. Exterior Latex, Flat MPI Gloss Level 1, MPI List Number 10.
 - B. Exterior Latex, Semi-Gloss, MPI Gloss Level 5, MPI List Number 11.
 - C. Exterior Latex, Gloss, MPI Gloss Level 6, MPI List Number 119.
- This paint may be tinted by using "universal" or "all purpose" concentrates.

SECTION 92: ASPHALTS

Issue Date: March 21, 2008

Section 92, "Asphalts," of the Standard Specifications is amended to read:

92-1.01 DESCRIPTION

• Asphalt is refined petroleum or a mixture of refined liquid asphalt and refined solid asphalt that are prepared from crude petroleum. Asphalt is:

1. Free from residues caused by the artificial distillation of coal, coal tar, or paraffin
2. Free from water
3. Homogeneous

92-1.02 MATERIALS

GENERAL

• Furnish asphalt under the Department's "Certification Program for Suppliers of Asphalt." The Department maintains the program requirements, procedures, and a list of approved suppliers at:

<http://www.dot.ca.gov/hq/esc/Translab/fpm/fpmcoc.htm>

- Transport, store, use, and dispose of asphalt safely.
- Prevent the formation of carbonized particles caused by overheating asphalt during manufacturing or construction.

GRADES

- Performance graded (PG) asphalt binder is:

Performance Graded Asphalt Binder

Property	AASHTO Test Method	Specification				
		Grade				
		PG 58-22 ^a	PG 64-10	PG 64-16	PG 64-28	PG 70-10
Original Binder						
Flash Point, Minimum °C	T 48	230	230	230	230	230
Solubility, Minimum % ^b	T 44	99	99	99	99	99
Viscosity at 135°C, ^c Maximum, Pa·s	T 316	3.0	3.0	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 1.00	64 1.00	64 1.00	64 1.00	70 1.00
RTFO Test, ^c Mass Loss, Maximum, %	T 240	1.00	1.00	1.00	1.00	1.00
RTFO Test Aged Binder						
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 2.20	64 2.20	64 2.20	64 2.20	70 2.20
Ductility at 25°C Minimum, cm	T 51	75	75	75	75	75
PAV ^f Aging, Temperature, °C	R 28	100	100	100	100	110
RTFO Test and PAV Aged Binder						
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G*·sin(delta), kPa	T 315	22 ^d 5000	31 ^d 5000	28 ^d 5000	22 ^d 5000	34 ^d 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, Mpa Minimum M-value	T 313	-12 300 0.300	0 300 0.300	-6 300 0.300	-18 300 0.300	0 300 0.300

Notes:

- a. Use as asphalt rubber base stock for high mountain and high desert area.
- b. The Engineer waives this specification if the supplier is a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt."
- c. The Engineer waives this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.
- d. Test the sample at 3°C higher if it fails at the specified test temperature. G*·sin(delta) remains 5000 kPa maximum.
- e. "RTFO Test" means the asphaltic residue obtained using the Rolling Thin Film Oven Test, AASHTO Test Method T 240 or ASTM Designation: D 2872. The residue from mass change determination may be used for other tests.
- f. "PAV" means Pressurized Aging Vessel.
 - Performance graded polymer modified asphalt binder (PG Polymer Modified) is:

Performance Graded Polymer Modified Asphalt Binder ^a

Property	AASHTO Test Method	Specification Grade		
		PG 58-34 PM	PG 64-28 PM	PG 76-22 PM
Original Binder				
Flash Point, Minimum °C	T 48	230	230	230
Solubility, Minimum % ^b	T 44 ^c	98.5	98.5	98.5
Viscosity at 135°C, ^d Maximum, Pa·s	T 316	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 1.00	64 1.00	76 1.00
RTFO Test, Mass Loss, Maximum, %	T 240	1.00	1.00	1.00
RTFO Test Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 2.20	64 2.20	76 2.20
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum (delta), %	T 315	Note e 80	Note e 80	Note e 80
Elastic Recovery, Test Temp., °C Minimum recovery, %	T 301	25 75	25 75	25 65
PAV ^e Aging, Temperature, °C	R 28	100	100	110
RTFO Test and PAV Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G* sin(delta), kPa	T 315	16 5000	22 5000	31 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, MPa Minimum M-value	T 313	-24 300 0.300	-18 300 0.300	-12 300 0.300

Notes:

- a. Do not modify PG Polymer Modified using acid modification.
- b. The Engineer waives this specification if the supplier is a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt."
- c. The Department allows ASTM D 5546 instead of AASHTO T 44
- d. The Engineer waives this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.
- e. Test temperature is the temperature at which G*/sin(delta) is 2.2 kPa. A graph of log G*/sin(delta) plotted against temperature may be used to determine the test temperature when G*/sin(delta) is 2.2 kPa. A graph of (delta) versus temperature may be used to determine delta at the temperature when G*/sin(delta) is 2.2 kPa. The Engineer also accepts direct measurement of (delta) at the temperature when G*/sin(delta) is 2.2 kPa.
- f. Tests without a force ductility clamp may be performed.
- g. "PAV" means Pressurized Aging Vessel.

SAMPLING

- Provide a sampling device in the asphalt feed line connecting the plant storage tanks to the asphalt weighing system or spray bar. Make the sampling device accessible between 24 and 30 inches above the platform. Provide a receptacle for flushing the sampling device.
- Include with the sampling device a valve:

1. Between 1/2 and 3/4 inch in diameter
 2. Manufactured in a manner that a one-quart sample may be taken slowly at any time during plant operations
 3. Maintained in good condition
- Replace failed valves.
 - In the Engineer's presence, take 2 one-quart samples per operating day. Provide round, friction top, one-quart containers for storing samples.

92-1.03 EXECUTION

- If asphalt is applied, you must comply with the heating and application specifications for liquid asphalt in Section 93, "Liquid Asphalts."

92-1.04 MEASUREMENT

- If the contract work item for asphalt is paid by weight, the Department measures asphalt tons by complying with the specifications for weight determination of liquid asphalt in Section 93, "Liquid Asphalts."
 - The Engineer determines the asphalt weight from volumetric measurements if you:
 1. Use a partial asphalt load
 2. Use asphalt at a location other than a mixing plant and no scales within 20 miles are available and suitable
 3. Deliver asphalt in either of the following:
 - 3.1. A calibrated truck with each tank accompanied by its measuring stick and calibration card
 - 3.2. A truck equipped with a calibrated thermometer that determines the asphalt temperature at the delivery time and with a vehicle tank meter complying with the specifications for weighing, measuring, and metering devices in Section 9-1.01, "Measurement of Quantities"
- If you furnish hot mix asphalt from a mixing plant producing material for only one project, the Engineer determines the asphalt quantity by measuring the volume in the tank at the project's start and end provided the tank is calibrated and equipped with its measuring stick and calibration card.
 - The Engineer determines pay quantities from volumetric measurements as follows:
 1. Before converting the volume to weight, the Engineer reduces the measured volume to that which the asphalt would occupy at 60 °F.
 2. The Engineer uses 235 gallons per ton and 8.51 pounds per gallon for the average weight and volume for PG and PG Polymer Modified asphalt grades at 60 °F.
 3. The Engineer uses the Conversion Table in Section 93, "Liquid Asphalts."

SECTION 93: LIQUID ASPHALTS

Issue Date: November 3, 2006

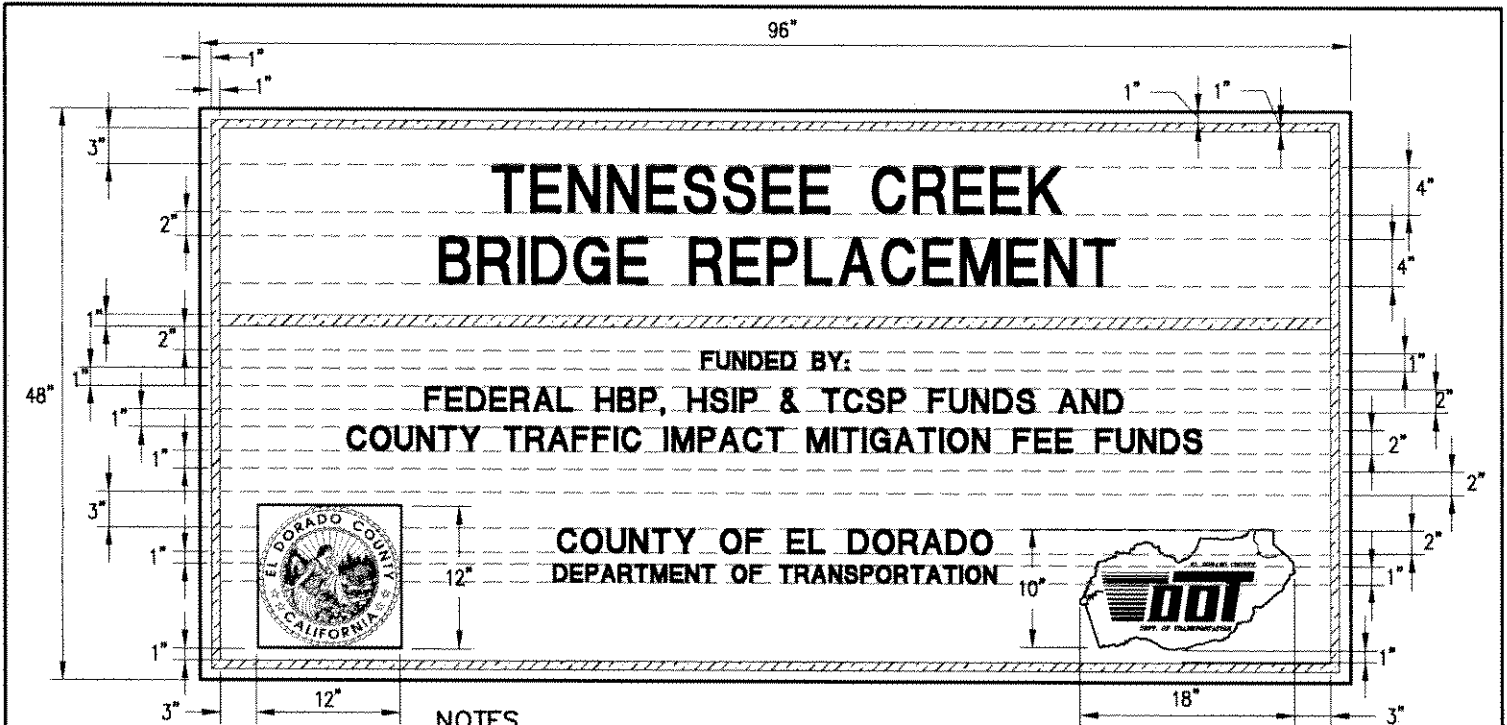
The ninth paragraph of Section 93-1.04, "Measurement," of the Standard Specifications is amended to read:

- The following Legend and Conversion Table is to be used for converting volumes of liquid asphalt products, Grades 70 to 3000, inclusive, and paving asphalt Grades PG 58-22, PG 64-10, PG 64-16, PG 64-28, and PG 70-10, and Grades PG 58-34 PM, PG 64-28 PM, and PG 76-22 PM.

END OF AMENDMENTS

APPENDIX B
to the contract documents for
Green Valley Road at Tennessee Creek – Bridge Replacement Project
Contract No. PW 09-30407 / CIP No. 77109

CONSTRUCTION PROJECT INFORMATION SIGNS



NOTES

1. THE ENGINEER SHALL SUPPLY THE CONTRACTOR WITH THE EL DORADO COUNTY AND DEPARTMENT OF TRANSPORTATION LOGO IN DIGITAL FORMAT. THE IMAGES SHALL BE PRINTED TO THE DIMENSIONS INDICATED, AND PLACED ON THE SIGN IN THE GENERAL LOCATION SHOWN.
2. THE IMAGES OF THE EL DORADO COUNTY LOGO AND DEPARTMENT OF TRANSPORTATION LOGO SHALL BE BLACK (NON-REFLECTIVE) ON WHITE BACKGROUND.
3. THE BORDER AND LETTERING OF THE SIGNS SHALL BE BLUE (NON-REFLECTIVE) ON WHITE BACKGROUND.
4. ALL DIMENSIONS SHOWN ARE IN INCHES, UNLESS OTHERWISE INDICATED.

**TENNESSEE CREEK
BRIDGE REPLACEMENT
FUNDING SIGN EXHIBIT**

APPENDIX C
to the contract documents for
Green Valley Road at Tennessee Creek – Bridge Replacement Project
Contract No. PW 09-30407 / CIP No. 77109

EL DORADO IRRIGATION DISTRICT TECHNICAL SPECIFICATIONS

EID SECTION 01656 - PRESSURE PIPE TESTING AND DISINFECTION

PART 1: GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall test and disinfect potable water pipelines and appurtenant piping, in accordance with the Contract Documents, Department of Public Health (DPH) requirements and applicable AWWA Standards.
- B. The Contractor shall be responsible for obtaining permits for discharging all testing and disinfection water and dechlorination of such water if required to satisfy permit limits.

1.02 CONTRACTOR SUBMITTALS

Contractor shall notify the District a minimum of 3 business days in advance of its proposed testing schedule for review and concurrence.

- A. Furnish:
 - 1. A testing plan and schedule, including method for water conveyance, control, disposal, and disinfection, shall be submitted in writing for approval.
 - 2. District Inspector shall collect sample and transport to EID's lab for testing.
 - 3. Resume and certifications of dechlorination technician.

PART 2: PRODUCTS

2.01 MATERIAL REQUIREMENTS

- A. Hydrostatic Testing Equipment:

The Contractor shall be responsible for supplying and operating all test equipment. In general, the testing equipment configuration shall consist of a pump receiving water from a calibrated storage tank. The pump discharge shall enter the water main through a tap or appurtenance. A pressure sustaining valve shall be placed on a tee located in the pump discharge line. Discharge from the pressure sustaining valve shall return to the calibrated storage tank. Other types or configurations of testing equipment shall be subject to District approval. If the pump is stopped, the pressure shall not be allowed to drop more than 2 psi below the test pressure before starting the pump.

- B. All test equipment, chemicals for chlorination, temporary valves, bulkheads, and other water control equipment, and choice of disinfectant shall be as determined by the Contractor. No materials shall be used which would be injurious to the Work. The disinfectant must be NSF/ANSI 60 approved.
- C. Chlorine for disinfection may be in the form of liquid chlorine or sodium hypochlorite solution,
 - 1. Liquid chlorine shall be in accordance with the requirements of ANSI/AWWA B301 - Liquid Chlorine, and shall be used only when each of the following conditions are satisfied:
 - a. Appropriate gas flow chlorinators and ejectors are used.
 - b. An experienced technician directly supervises.
 - c. Appropriate safety practices are observed.

2. Use of hypochlorites shall be in accordance with ANSI/AWWA B300 –Hypochlorites, and containing approximately 65 percent available chlorine by weight.
- D. Dechlorination agents may be sodium bisulfite, sodium sulfite, or sodium thiosulfate.

PART 3: EXECUTION

3.01 GENERAL

- A. Water for testing, disinfecting and flushing water pipelines will be furnished by the District for the first each of these operations; however, the Contractor shall convey the water from the District-designated source to the points of use. The Contractor shall pay for any water required for re-testing, re-disinfecting, or re-flushing of the water pipelines in accordance with the District's current rate schedule.
- B. All pressure pipelines shall be tested; those for potable water shall be disinfected. All chlorinating and testing operations shall be performed in the presence of the District.
- C. All flushing water and water containing chlorine must first have the chlorine residual completely neutralized before being discharged into the environment, or transported to an approved location for disposal. The method used to neutralize the chlorine must receive pre-approval from the District.
- D. Disinfection operations shall be scheduled as late as possible during the Contract Time to maximize the degree of sterility of the facilities at the time the Work is accepted by the District. Bacteriological testing shall be performed by District staff and bacteriological sampling shall be performed by the District's certified testing laboratory.
- E. Test Completion: Release water from pipelines, after testing and disinfecting have been completed, shall be in accordance with a written proposal plan reviewed by the District.

3.02 HYDROSTATIC TESTING OF PIPELINES

- A. Pipelines 30-inches diameter and larger shall be visually inspected to assure that all debris has been removed prior to flushing.
- B. Prior to hydrostatic testing, pipelines shall be flushed or blown out as appropriate. The Contractor shall test pipelines in sections. Sections to be tested shall be defined by isolation valves in the pipeline. Where such valves are not present, the Contractor shall install temporary bulkheads or plugs for the purpose of testing. Sections that do not have isolation valves shall be tested in approximate one-mile segments. Sections that have a zero leakage allowance may be tested as a unit. The test shall be made by closing valves when available or by placing bulkheads and filling the line slowly with water. The Contractor shall be responsible for ascertaining that test bulkheads are suitably restrained to resist the thrust of the test pressure without damage to or movement of the adjacent pipe. Unharnessed sleeve-type couplings, expansion joints, or other sliding joints shall be restrained or suitably anchored prior to the test to avoid movement and damage to piping and equipment. Remove or protect any pipeline-mounted devices that may be damaged by the test pressure. The Contractor shall provide sufficient temporary tappings in the pipelines to allow for trapped air to exit. After completion of the tests, such taps shall be permanently plugged. Care shall be taken that air relief valves are open during filling.
- C. The pipeline shall be filled at a rate which will not cause any surges or exceed the rate at which the air can be released through the release valves at a reasonable velocity. The air within the pipeline shall be allowed to escape completely. The differential pressure across the orifices in the air release valves shall not be allowed to exceed 5 psi at any time during filling. After the pipeline or section thereof has been filled, it shall be allowed to stand under a slight pressure for at least 4 hours to allow the concrete or mortar lining, as applicable, to absorb water and to allow the escape

of air from air pockets. During this period, bulkheads, valves, and connections shall be examined for leaks. If leaks are found, corrective measures satisfactory to the District shall be taken.

- D. The hydrostatic test shall consist of holding the indicated test pressure on the pipeline segment for a period of 2 hours. The test pressure for yard piping shall be as indicated on the Piping Schedule measured at the lowest point of the pipeline section being tested.

No pressure test will be required for an overflow line. Visible leaks that appear during testing shall be repaired in a manner acceptable to the District. Add water to restore the test pressure if the pressure decreases 2 psi below test pressure during the test period.

- E. The maximum leakage for yard piping shall be as indicated on the Piping Schedule. Pipe with welded joints shall have no leakage. Exposed piping shall show no visible leaks and no pressure loss during the test. In the case of pipelines that fail to pass the leakage test, the Contractor shall determine the cause of the leakage, shall take corrective measures necessary to repair the leaks, and shall again test the pipeline, repeating as necessary until the pipeline passes. All new valves shall be tested against a reduced pressure side. Butterfly valves shall be tested in both directions.
- F. Test Section Length: The length of pipe being tested at any one time shall not exceed 2,000 feet unless otherwise approved by the District.
- G. Test Pressure: The test pressure shall be 50 psi greater than the design pressure of the system, measured at the lowest point the section of pressure zone being tested.
- H. Test Duration: The test duration shall be two hours. Pressure in the water main shall be maintained within the 2 psi of the calculated test pressure for the two hour duration. The individual testing of the valves may be of a shorter duration as approved by the District.
- I. Allowable Leakage: The allowable leakage per test section shall be calculated from the formula contained in this subsection. Different sized water mains and different water main materials that might be contained within the same test section shall be calculated separately and then added together.

$$W = \frac{NDP^{1/2}}{7400}$$

WHERE:

W = Allowable leakage in gal/hr

N = Number of joints in the length of pipeline tested

D = Normal diameter in inches

P = Average test pressure in psi

- J. Repairs: During the pressure and leakage test, all accessible appurtenances shall be inspected for visual signs of leakage. All visual leaks shall be corrected immediately, regardless of the amount of leakage and the test shall be run again for its full duration. All leaks detected shall be repaired to a water tight condition. All repairs shall be retested in accordance with the specifications. All repairs shall be made a successful test accomplished prior to taking the bacteriological samples.

3.03 DISINFECTING PIPELINE

3.03.1 – 20” DIP Water Main

- A. General: The 20-inch DIP potable water main except those appurtenant to hydraulic structures shall be disinfected per the Slug Method in accordance with the requirements of the most recent version of ANSI/AWWA C651 - Disinfecting Water Mains, using the slug Method as modified herein.
- B. Disinfection: A chlorine-water mixture shall be uniformly introduced into the pipeline by means of a solution-feed chlorinating device. The chlorine solution shall be introduced at one end of the pipeline through a tap in such a manner that as the pipeline is filled with water, the chlorine dosage applied to the water entering the pipe shall be 100 mg/l. Care shall be taken to prevent the strong chlorine solution in the line being disinfected from flowing back into the line supplying water. The person or persons introducing the chlorine-water mixture shall be experienced in this method of disinfection and be in possession of all appropriate and current licenses and certifications.
- C. Retention Period: Chlorinated water shall be retained in the pipeline for at least 3 hours.
- D. Chlorinating Valves: During the process of chlorinating the pipelines, valves and other appurtenances shall be operated from closed to full open to closed while the pipeline is filled with the heavily-chlorinated water.
- E. Sampling Ports: The Contractor shall provide sampling ports along the pipeline as defined in AWWA C651. Taps may be made at manways and air valves to help facilitate the spacing requirement.
- F. Final Flushing: After the applicable retention period, the heavily chlorinated water shall be flushed from the pipeline until chlorine measurements show that the concentration in the water leaving the pipeline is no higher than that generally prevailing in the system or is acceptable for domestic use.

All chlorinated water used for disinfection shall be flushed into a Baker Tank prior to discharging into Tennessee Creek. Water entering the Baker Tank shall be diluted and treated with an approved de-chlorination agent. After diluted water crosses the Baker Tank baffle, it shall be analyzed continuously onsite to verify discharged water meets final flushing criteria. Baker Tank piping shall include a sample port for testing, chlorine residual testing equipment, and an isolation valve.

All water containing chlorine residual shall be completely neutralized before being discharged into the environment. Any release of dechlorinated water shall comply with federal, state, and local laws, regulations, and permits for the project. If the Contractor cannot meet discharge requirements, the Contractor shall be fully responsible for the transport and disposal of disinfection and flush water to an approved location.

- G. Bacteriological Testing: After final flushing and before the pipeline is placed in service, a sample, or samples shall be collected from the end of the line by District personal, and shall be tested for bacteriological quality in accordance with the requirements of DPH at a certified lab. For this purpose the pipe shall be re-filled with fresh potable water and left for a period of 24 hours before any sample is collected. If testing does not demonstrate a free chlorine residual after the 24-hour period, the disinfection procedure above shall be repeated. If the initial disinfection treatment fails to produce satisfactory bacteriological test results, the disinfection procedure shall be repeated at the Contractor's expense until acceptable results are obtained.

- H. Submittals: Submit disinfection test plan which details procedures to disinfect the 20-inch DIP

water line including

1. Method and locations of disinfectant and disinfectant neutralization application.
2. Name of person for chlorination and dechlorination and a copy of all relevant licenses and certifications.
3. Location of sampling points.
4. Method of flushing and location of flushing ports.
5. Method to continuously measure and record baker tank effluent chlorine residual.
6. Disposal location for dechlorinated water.

I Submit Disinfection Reports and Include the Following:

7. Date issued.
8. Project name, location, and pipeline being disinfected.
9. Treatment subcontractor's name, address, and phone number.
10. Type and form of disinfectant used.
11. Time and date of disinfectant injection start.
12. Time and date of disinfectant injection completion.
13. Test locations.
14. Initial and 24 hour disinfectant residuals in parts per million for each outlet tested.
15. Time and date of flushing start.
16. Time and date of flushing completion.
17. Baker tank continuous effluent chlorine residual data.
18. Disinfectant residual after flushing in parts per million for each outlet tested.

3.03.2 – 6” C900 Waterline

- A. General: The 6-inch C900 potable waterline shall be disinfected per the requirements of the most recent version of ANSI/AWWA C651 - Disinfecting Water Mains.
- B. Disinfection: Perform disinfection of water lines in accordance with AWWA C651 and as specified in this section. Starting at an outlet closest to the water source, bleed water from each outlet until water produces an odor of the disinfectant. Repeat this process at each outlet throughout the system. Test for disinfectant residual in accordance with the approved disinfection plan. Maintain disinfectant in system for a minimum of 24 hours. When the disinfectant residual is less than 25 parts per million (ppm), repeat system treatment.
- C. Flushing: Remove disinfectant from water lines. Flush water lines with potable water containing no more disinfectant residual than the active distribution system or 1.0 ppm, whichever is greater. All water containing chlorine residual shall be completely neutralized before being discharged into the environment. Any release of dechlorinated water shall comply with federal, state, and local regulation and the permits for the project. All disinfectant must be completely neutralized before the flush water is released into the environment and is to be disposed in accordance with the approved disinfection test plan.
- D. Sampling Ports: The Contractor shall provide sampling ports along the pipeline as defined in AWWA C651. Taps may be made at manways and air valves to help facilitate the spacing requirement.
- G. Bacteriological Testing: After final flushing and before the pipeline is placed in service, a sample, or samples shall be collected from the end of the line by District personal, and shall be tested for bacteriological quality in accordance with the requirements of DPH at a certified lab. For this purpose the pipe shall be re-filled with fresh potable water and left for a period of 24 hours before any sample is collected. If testing does not demonstrate a free chlorine residual after the 24-hour period, the disinfection procedure above shall be repeated. If the initial disinfection treatment fails to produce satisfactory bacteriological test results, the disinfection procedure shall be repeated at the Contractor's expense until acceptable results are obtained.
- H. Submittals: Submit disinfection test plan which details procedures to disinfect the 6-inch C900 water line including;

1. Method and locations of disinfectant and disinfectant neutralization application.
2. Name of person for chlorination and dechlorination and a copy of all relevant licenses and certifications.
3. Location of sampling points.
4. Method of flushing and location of flushing ports.
5. Disposal location for dechlorinated water.

- I Submit Disinfection Reports and Include the Following:
1. Date issued.
 2. Project name, location, and pipeline being disinfected.
 3. Treatment subcontractor's name, address, and phone number.
 4. Type and form of disinfectant used.
 5. Time and date of disinfectant start.
 6. Time and date of disinfectant injection completion.
 7. Test locations.
 8. Initial and 24 hour disinfectant residuals in parts per million for each outlet tested.
 9. Time and date of flushing start.
 10. Time and date of flushing completion.
 11. Effluent chlorine residual data.
 12. Disinfectant residual after flushing in parts per million for each outlet tested.

3.04 CONNECTIONS TO EXISTING SYSTEM

- A. Where connections are to be made to an existing potable water system, the interior surfaces of all pipe and fittings used in making the connections shall be swabbed or sprayed with a one percent hypochlorite solution before installation. Thorough flushing shall be started as soon as the connection is completed and shall be continued until discolored water is eliminated.
- B. The Contractor shall initiate a request for a tie-in to existing facilities to the District. The Contractor shall submit for approval, a detailed work plan and tie-in parts list at a minimum of 72 hours before the requested shutdown. Shutdowns shall be scheduled at the District's convenience. The 20" Gold Hill Intertie may only be shutdown on a Tuesday, Wednesday, or Thursday during nighttime hours during the months of December or January. Before the shutdown is initiated by the District, the District's inspector shall verify that the Contractor has all components, such as fittings, bolts, gaskets, etc. to complete the tie-in work. The Contractor must make both tie-in's simultaneously and shall be completed within four hours. No extra compensation will be provided for connections required by the District to be made at night.

END OF SECTION

EID SECTION 02223 - TRENCHING, BACKFILLING, AND COMPACTING

PART 1: GENERAL

1.01 DESCRIPTION

The work of this section consists of trenching and backfilling for the construction and installation of pipelines, conduits and cables. All trenching will be open cut, unless otherwise approved in writing or indicated on the contract drawings. It includes all trenching, backfilling, and compacting, or tunneling, construction of cribbing and cofferdams, dewatering, and incidental work.

1.02 RELATED WORK SPECIFIED ELSEWHERE

Section 01656: Pressure Pipe Testing and Disinfection

1.03 SUBMITTALS

- A. Submit six copies of a report from a testing laboratory verifying that material conforms to the specified gradations of characteristics for granular material, imported sand, rock refill for foundation stabilization, and water.
- B. Submit method of compaction in pipe zone including removal sequence of shoring where used.
- C. Provide written description of barricading, shoring, cribbing, bracing, and sloping precautions.

1.04 PROJECT CONDITIONS

- A. Obtain all required permits and licenses before installing utilities under existing roads, and follow the rules and requirements of the authority having jurisdiction.
- B. Arrange construction sequences to provide the shortest practical time that the trenches will be open to avoid hazard to subcontractors, the public, wildlife, and to minimize the possibility of trench collapse.

1.05 TESTING FOR COMPACTION

- A. EID will test for compaction at locations determined by EID.
- B. Relative compaction is defined as the ratio, in percent, of the as-compacted dry density to the laboratory maximum dry density. The laboratory maximum dry density is defined in accordance with ASTM D 1557, latest edition.
- C. Where compaction tests indicate a failure to meet the specified compaction, EID will take additional tests every 50 feet in each direction until the extent of the failing area is identified. Rework the entire failed area until the specified compaction has been achieved.

1.06 STREET ZONE

The street zone includes the asphalt concrete and aggregate base pavement section placed over the trench backfill. It also includes the section in unpaved roadways extending a minimum distance of 6-inches below the travel surface.

1.07 TRENCH ZONE

The trench zone includes the portion of the trench from the top of the pipe zone to the bottom of the street zone in paved or unpaved roadway areas or to the existing surface in non-roadway areas.

1.08 CONDUIT ZONE

The conduit zone shall include the full width of trench and extend from bottom of the pipe or conduit up 6- inches in depth, as shown on the contract drawings.

1.09 PIPE ZONE

The pipe zone shall include the full width of trench from the top of the pipe bedding zone (or conduit zone, if present) to a horizontal level 12-inches above the top of the pipe, as shown on the contract drawings.

1.10 PIPE BEDDING

The pipe bedding shall be, unless noted otherwise on the drawings, defined as a minimum 6-inches thick layer of material immediately below the bottom of the pipe or conduit and extending over the full trench width in which the pipe is bedded.

PART 2: MATERIALS

2.01 MATERIAL FOR BACKFILL - STREET ZONE

Street zone material requirements shall be in accordance with El Dorado Department of Transportation specifications.

2.02 MATERIAL FOR BACKFILL - TRENCH ZONE

Material for backfill from 12 inches above the top of pipe to the subgrade, shall be free from organic matter, debris, and rocks larger than 6 inches in diameter or length. EID shall be the sole judge of conformance of backfill material to this specification.

Material shall generally conform to the following gradation:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
6"	100
3"	50
No. 4	35 – 100
No. 30	20 – 100

Imported sand shall have a sand equivalent not less than 28 per ASTM D 2419.

2.03 MATERIAL FOR BACKFILL – PIPE ZONE

Aggregate Base – Base shall be ¾ inch and minus. The aggregate size gradation shall comply with Caltrans Specifications for Class 2 road base. The sand equivalent shall be 30 minimum. The durability index shall be a 35 minimum.

2.04 ALTERNATIVE PIPE BEDDING, CONDUIT ZONE AND PIPE ZONE - CEMENT SLURRY (CLSM: CONTROLLED LOW-STRENGTH MATERIAL)

As an alternative to the materials specified, or where identified on the Contract Drawings, cement slurry backfill shall consist of Type I or II Portland cement, imported sand, and sufficient water for workability. The mix shall produce a minimum and maximum 28-day strength of 50 and 100 PSI, respectively.

2.05 REFILL FOR FOUNDATION STABILIZATION OR OVEREXCAVATION

Refill shall meet the material requirements specified for pipe zone. As an alternative, crushed rock, enveloped in a non-woven geotextile fabric may be utilized. Crushed rock shall have a maximum particle size of 1 inch and have less than 5 percent passing the No. 200 U.S. sieve. Geotextile fabric shall be Mirafi 140N, Propex 4547 or equal.

2.06 CONCRETE FOR PIPE ENCASEMENT AND THRUST BLOCKS

- A. Provide thrust blocks at fittings in pipe having rubber gasket bell and spigot. Provide thrust blocks at all tees and elbows 10° and greater, or as noted on contract plans and in the general or specific pipe specifications.

- B. See the details in the drawings for thrust block sizes. Install thrust blocks based on the test pressures given in the drawings.

2.07 WATER FOR COMPACTION

- A. The Contractor will be allowed to draw water only at the locations approved by the District. The Contractor shall be responsible for coordinating with the District for the use of surface water or approved well sites. The Contractor shall provide permitting, equipment, power, and labor as required to utilize surface of ground water. The Contractor shall be responsible for the repair of any damage to existing utilities which can be attributed to this operation.
- B. No provision in this section is intended to prevent the Contractor from making arrangements for water from other than EID approved sources. All costs involved shall be the responsibility of the Contractor's.
- C. Potable water for use by the Contractor for Construction or other purposes shall coordinated by the Contractor with the District at the Contractor's expense. Contractor shall obtain a construction water meter from EID at the Contractors expense.

PART 3: EXECUTION

3.01 TRENCH SUBGRADE PREPARATION

Prior to placement of bedding, the exposed trench subgrade shall be free of soft, loose, or unstable areas. Loose materials resulting from excavation disturbance shall be removed to firm material. Soft or unstable areas shall be over excavated to a depth of at least 2 feet or to a firm base as determined by the District and replaced with refill for foundation stabilization as described previously. If porous soils, as determined by the District, are exposed in the trench bottom subgrade shall be recompacted to at least 90 percent relative compaction.

3.02 COMPACTION REQUIREMENTS

Unless otherwise shown in the drawings or otherwise described in the specifications for the particular type of pipe installed, relative compaction in pipe trenches shall be as follows:

- A. Pipe Bedding Zone: 90% relative compaction.
- B. Pipe and Conduit Zone: 95% relative compaction.
- C. Backfill in Trench Zone not Beneath Roadways: 90% relative compaction.
- D. Backfill in Trench Zone to Street Zone Beneath Roadways: 95% relative compaction.
- E. Backfill in Street Zone in Roadways: 95% of relative compaction.
- F. Refill for Foundation Stabilization: 95% relative compaction.
- G. Refill for Overexcavation: 95% relative compaction.

3.03 MATERIAL REPLACEMENT

Remove and replace any backfill material which does not meet the specifications, at the Contractor's expense.

3.04 SLOPING, SHEETING, SHORING, PLATING, AND BRACING OF TRENCHES

Trenches shall have sloping, sheeting, shoring, plating, and bracing conforming with 29CFR1926, Subpart P – Excavations, OSHA requirements. All shoring for open excavations shall conform to the state of California, Department of Industrial Relations, Division of Industrial Safety “Construction of Safety Orders”.

- A. No shoring, once installed, shall be removed until the trench has been approved for backfill operations. Removal of shoring shall only be accomplished during backfill operations and in such a manner as to prevent any movement of the ground or damage to the pipe or other structures.
- B. Excavated material shall not be placed closer than two feet from the top edge of the trench. Heavy equipment should not be used or placed near the sides of trench unless the trench is adequately braced.
- C. Trench plating shall be installed and maintained wherever there is open trenching and excavation to allow for safe vehicular and pedestrian traffic. Plating shall be placed and installed to allow at least one lane of vehicular traffic during the day and two lanes of traffic during the evening while construction services are being performed.

3.05 SIDEWALK, PAVEMENT, AND CURB REMOVAL

Cut bituminous and concrete pavements regardless of the thickness and curbs and sidewalks prior to excavation of the trenches with a pavement saw or pavement cutter. Width of the pavement cut shall be at least equal to the required width of the trench at ground surface. For final pavement replacement limits, pavement shall be cut with a pavement saw 12 inches beyond the trench width to provide a T-section. See typical trench details on Contract Drawings. Dispose of pavement and concrete materials offsite at no additional cost to EID. Do not use for trench backfill.

3.06 TRENCH WIDTHS

Trench widths in the pipe zone shall be as shown in the drawings. Trench width at the top of the trench will not be limited except where width of excavation would undercut adjacent structures and footings. In such case, width of trench shall be such that there is at least 2 feet between the top edge of the trench and the structure or footing.

Nominal Pipe Diameter	Trench Width Minimum	Maximum
6"-12"	O.D. + 12"	O.D. + 18"
14"-20"	O.D. + 18"	O.D. + 24"

3.07 TRENCH LENGTHS

Unless otherwise specified by the District, the maximum length of open trench shall be 500 feet, or the distance necessary to accommodate the amount of pipe installed in a single day, whichever is greater. The distance is the collective length of any location, including open excavation, pipe laying and appurtenant construction and backfill which has not been temporarily resurfaced. Failure by the Contractor to comply with the limitations specified herein may result in an order to halt progress of the work until compliance has been achieved. The Contractor shall provide proper barricades for the excavated areas.

3.08 TRENCH EXCAVATION

Excavate the trench to the lines and grades shown in the drawings with allowance for pipe thickness, sheeting and shoring if used, and for pipe bedding. If the trench is excavated below the required grade, refill any part of the trench excavated below the grade at no additional cost to EID with foundation stabilization material. Place the refilling material over the full width of trench in compacted layers not

exceeding 8-inch loose lifts to the established grade with allowance for the pipe bedding. Contractor shall bear costs of disposing of roots and all other waste materials from the excavation. Material shall be disposed of in such a manner as to meet all requirements of the state, county, and local regulations regarding health, safety, and public welfare.

3.09 DEWATERING

Provide and maintain means and devices to remove and dispose of all water entering the trench excavation during the time the trench is being prepared for the pipe-laying, during the laying of the pipe, and until the backfill at the pipe zone has been completed. These provisions shall apply at all times during construction, including the noon hour as well as overnight.

Dispose of the water in a manner to prevent damage to adjacent property and in accordance with applicable permits. Do not drain trench water through the pipeline under construction. Do not allow groundwater to rise around the pipe until the trench has been backfilled. Contractor shall be responsible to obtain all required Local and State Permits and adhere to all discharge requirements.

3.10 LOCATION OF EXCAVATED MATERIAL

During trench excavation, place the excavated material only within the working area. Do not obstruct any roadways or streets. Conform the federal, state, and local codes governing the safe loading of trenches with excavated material. All trenches shall be backfilled at the end of each day's operation. Trench patching with asphalt concrete shall be completed within 24 hours of trench backfill.

3.11 TRENCH EXCAVATION IN BACKFILL AND EMBANKMENT AREAS

Construct trench excavation for pipe or conduit in backfill or embankment areas in accordance with the following procedures:

- A. Construct and compact the embankment to an elevation of 1-foot minimum over the top of the layer of the largest pipe or conduit to be installed.
- B. Excavate trench in the compacted backfill or embankment. Place cement slurry in the pipe bedding, conduit zone (if present) and pipe zone. Compact backfill above the pipe zone to the relative compaction required for trench zone backfill.

3.12 FOUNDATION STABILIZATION

- A. After the required excavation has been completed, the District may inspect the exposed subgrade to determine the need for any additional excavation. It is the intent that additional excavation be conducted in all areas within the influence of the pipeline where unacceptable materials exist at the exposed subgrade, as directed by the District.

Over excavation shall include the removal of all such unacceptable materials that exists directly beneath the pipeline to the required trench width and to the depth required. Backfill the trench to subgrade of pipe bedding with refill material for foundation stabilization. Place the foundation stabilization material over the full width of the trench and compact in layers not exceeding 8-inch loose lifts to the required grade. Foundation stabilization work shall be executed in accordance with a field directive.

- B. Refill used by the Contractor for his convenience or over excavation will not receive any additional payment.

3.13 INSTALLING BURIED PIPING

- A. Backfill per the detailed piping specification for the particular type of pipe and per the following.

- B. Handle pipe in such a manner as to avoid damage to the pipe. Do not drop or dump pipe into trenches under any circumstances.
- C. Inspect each pipe or fitting prior to placing into the trench. Inspect the interior and exterior protective coatings. Patch damaged areas in the field with material recommended by the protective coating manufacturer. Clean ends of pipe thoroughly. Remove foreign matter and dirt from inside of pipe and keep clean during and after installation. Pipe ends are to be plugged at all times to prevent contamination unless pipe sections are being joined.
- D. Grade the bottom of the trench to the line and grade to which the pipe is to be laid, with allowance for pipe thickness and bedding depth. Remove hard spots that would prevent a uniform thickness of bedding. Place the specified thickness pipe bedding material over the full width of trench. Grade the top of the pipe bedding ahead of the pipe-laying to provide firm, continuous, uniform support along the full length of pipe, and compact to the relative compaction specified herein. After laying each section of the pipe, check the grade and alignment and correct any irregularities prior to laying next joint.
- E. Excavate bell holes at each joint to permit proper assembly and inspection of entire joint. Fill the area excavated for the joints with the bedding material specified or detailed in the drawings.
- F. When installing pipe, do not deviate more than 1-inch from line or 1/4 –inch from grade relative to the Contractor’s established control. Measure elevation at the pipe invert. The Contractor shall verify pipe grade at not more than 50 foot intervals, in the presence of EID’s Representative.
- G. After pipe has been bedded and installed, place pipe zone material simultaneously on both sides of the pipe, in maximum 8-inch loose lifts, keeping the level of backfill the same on each side. Carefully place the material around the pipe so that the pipe barrel is completely supported and that no voids or compacted areas are left beneath the pipe. Use particular care in placing material on the underside of pipe to prevent lateral movement during subsequent backfilling.
- H. For pipe sizes greater than 12-inches in diameter, no more backfill material than the lesser of 6-inches or 1/3rd of the pipe diameter shall be placed prior to shovel slicing. Sufficient care shall be taken to prevent movement of the pipe during shovel slicing. Shovel slicing shall be witnessed by the Field Inspector and/or the District.
- I. Compact each lift to the relative compaction specified herein.
- J. Push the backfill material carefully onto the backfill previously placed in the pipe zone. Do not permit free fall of the material until at least 2 feet of cover is provided over the top of the pipe. Do not drop sharp, heavy pieces of material directly onto the pipe or the tamped material around the pipe. Do not operate heavy equipment over the pipe until at least 3.5 feet of backfill has been placed and compacted over the pipe.
- K. When pipelaying is not in progress, including the noon hours, close the open ends of pipe. Do not allow trench water, animals, or foreign material to enter the pipe.
- L. Remove and dispose of all water entering the trench during the process of pipelaying. Keep the trench dry until the pipelaying and jointing are completed.
- M. Do not backfill until after all pipe joints, designated to be field welded, have been completed and properly mortared to the satisfaction of the District.

3.14 BACKFILL COMPACTION

Compact per the detailed piping specification for the particular type of pipe and per the following:

- A. Backfill shall be completed within the shortest possible time to allow construction area or street to be reopened to traffic. If, for any reason, construction of the pipeline or appurtenances thereto is delayed, the District may require that the trench be backfilled and such areas or streets opened to traffic.
- B. Compact trench backfill to the specified relative compaction. Compact by using mechanical compaction or hand tamping. Do not use high impact hammer-type equipment except where the pipe manufacturer warrants in writing that such use will not damage the pipe.

Ponding or jetting is not allowed.
- C. Compact material placed within 12-inches of the outer surface of the pipe by hand tamping only.
- D. Do not use any axle-driven or tractor-drawn compaction equipment within 5 feet of building walls, foundations, or other structures.

3.15 CEMENT SLURRY BACKFILL (CLSM)

When cement slurry backfill is utilized, pipe shall be supported by mounding imported backfill material or sandbags filled with imported backfill material. Pipe shall not be supported on wooden or concrete blocks.

The compressive strength shall be determined at least once for every 50 feet of pipe placed. The preparation and testing of cement slurry backfill cylinders shall be in accordance with ASTM D4832.

END OF SECTION

EID SECTION 02229 - UTILITY LINE MARKING

PART 1: GENERAL

1.01 DESCRIPTION

The work of this section consists of furnishing and installing utility line marking.

1.02 SUBMITTALS

- A. Samples: 24 inch strips of tape and 2 markers.
- B. Certification that the materials used in the tape fabrication meet the requirements of this section.

PART 2: MATERIALS

2.01 MARKING TAPE

- A. Capable of being inductively detected electronically.
- B. Construction: Metallic foil laminated between two layers of plastic film not less than 2 inches wide. The adhesive shall be colored and be compatible with the foil and film.
- C. Film: Inert plastic. Each film layer shall be not less than 0.0005 inch thick (1/2 mil).
- D. Foil: Not less than 0.001 inch thick (1 mil).

- E. Imprint: 3/4 inch or larger bold black letters.
- F. Legend: The buried utility line tape shall be identified with imprint such as "CAUTION: WATER LINE BELOW" and the identification repeated on approximately 24 inch intervals. The imprint marking shall be consistent with the utility use.
- G. Detectable marking and warning tape shall be as manufactured by Lineguard, Inc., Paul Potter Associates, all of Wheaton, Illinois; Griffolyn Company, Inc., Houston, Texas, or equal.

2.02 SURFACE MARKERS

- A. Location Stakes: A list of approved off-site location stakes include:

Carsonite #375
(as distributed by Berntsen International SURV-KAP Inc., or equal.)

4" x 5" with anchor barb kit

- B. Caution Labels: A list of approved off-site location stakes include:

Caution stickers attached -- #CW-112 and organization decal #P101

Buried Waterline – Call Before Digging – 1-800-227-2600

PART 3: EXECUTION

3.01 MARKING TAPE

- A. Install tape in backfill directly over each buried utility line, directly above the pipe zone, unless otherwise noted on the drawings.
- B. Where utilities are buried in a common trench, identify each line by a separate warning tape. Bury tapes side by side directly over the applicable line.

3.02 SURFACE MARKERS

Outside paved areas, provide stakes for pipelines 24-inch and larger at 500 feet intervals and at all changes in alignment or end of pipe.

END OF SECTION

EID SECTION 02622 – POLYVINYL CHLORIDE PIPE AND FITTINGS (PVC) (PRESSURE FLOW)

PART 1: GENERAL

1.01 SCOPE

This specification governs the furnishing and installation of PVC pipe material and main line fittings including laying, jointing, bedding, and approvals. All incidentals and appurtenant operations necessary for the construction of water mains shall be done in strict accordance with the drawings and other terms and conditions of the contract.

Fitting types covered under this section include bends, tees, crosses, reducers, couplings, caps, plugs, adapters and all other fittings necessary for a complete pipeline installation.

The Contractor shall also furnish all equipment, tools, labor and materials required to relocate sewers, conduits, ducts, pipes, or other structures as may be necessary to complete the installation as shown and specified.

All standard specifications; i.e., AWWA, ASTM, etc., made a portion of these specifications by reference shall be the latest edition and revision thereof.

The Contractor shall be responsible for all material furnished by him and shall replace at his own expense, all material found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishings of all material and labor required to replace defective material discovered prior to final acceptance of the work.

Pipe surfaces shall be free from nicks, scratches and other blemishes. The joining surfaces of pipe spigots and of integral bell and sleeve reinforced bell sockets shall be free from gouges or other imperfections that might cause leakage.

1.02 STORAGE AND CARE

The Contractor shall be responsible for the safe storage of material until it has been incorporated into the completed project. The interior of all pipe and fittings shall be kept free from dirt and foreign matter at all times.

Pipe shall be stored at the job site in unit packages provided by the manufacturer. Caution shall be exercised to avoid compression, damage or deformation to bell ends of the pipe. If pipe is to be exposed to direct sunlight for more than 14 days, pipe must be covered with an opaque material while permitting adequate air circulation above and around the pipe to prevent excessive heat accumulation. Gaskets shall be protected from excessive exposure to heat, direct sunlight, ozone, oil and grease.

1.03 SUBMITTALS

Submittals shall be provided for the following items plus all additional items required in the specifications for the particular type of pipe:

- A. Pipe and jointing material
- B. Fittings
- C. Specialties

PART 2: MATERIALS

2.01 POLYVINYL CHLORIDE PIPE (PVC)

PVC pipe shall conform to ANSI/AWWA C-900, titled "Polyvinyl Chloride Pipe (PVC) Pressure Pipe 4 Inches through 12 Inches for Water" and shall have the same outside diameter (O.D.) as that of cast iron pipe (C.I.P.O.D.) in the sizes furnished.

- A. Markings - Each standard or random length of pipe shall be clearly marked with the following:
 - 1. Nominal size and O.D. base; i.e., 6 inch cast iron pipe size
 - 2. Material code "PVC 1120"
 - 3. Dimensional ratio; i.e., DR 18 where DR is equal to thickness "divided by" diameter
 - 4. AWWA pressure class; i.e., PC 235
 - 5. AWWA designation "AWWA C-900"

- 6. Manufacturer's trade name and production record code
 - 7. Seal (mark) of testing agency
- B. Pressure Class - Where the class is not indicated on the plans, the pipe shall be Class 235.
 - C. Laying Length - The standard laying length shall be 20 feet (plus or minus 1 inch) in all classes. A maximum of 15 percent may be furnished in random lengths of not less than 10 feet each.
 - D. Joint Type - Pipe joints shall be made using an integral bell with an elastomeric gasket push-on type joint or using machined couplings of a sleeve type with rubber ring gaskets and machined pipe ends to form a push-on type joint.

Solvent cement joints are strictly prohibited.

One coupling complete with one gasket each shall be factory assembled to each length of standard length pipe furnished. The companion gasket for each coupling will be packaged separately for shipment. Couplings shall be the same class as the pipe. Manufacturer shall furnish gasket lubricant for each quantity of pipe furnished. When additional couplings are furnished as separate items, two gaskets shall be furnished and installed in the gasket recess of each coupling.

- 1. Couplings - Where couplings are used, they shall meet the requirements of ANSI/AWWA C-900. Couplings shall be as furnished by the manufacturer. Couplings shall be marked with same information as the pipe.
- E. Physical Test Requirements - Hydrostatic burst and sustained pressure and crushing tests shall be conducted at the factory in accordance with ANSI/AWWA C-900. All testing shall be subject to inspection by the District. If required, the manufacturer shall supply a letter of certification attesting to their pipe meeting these specifications.
- F. Locating Wire - Locating wire shall be #10 solid AWG direct bury copper tracer wire with solid thermoplastic insulation.
- G. Warning Tape - Warning tape shall be 12-inch-wide blue non-metallic tape marked "waterline."

2.02 FITTINGS

All cast and ductile iron fittings shall be manufactured in accordance with the following AWWA Standards: C104, "Cement-Mortar Lining for Ductile-Iron Pipe and Gray-Iron and Fittings for Water," C110, "Gray-Iron and Ductile-Iron Fittings, 3 Inches through 48 Inches for Water and Other Liquids", C111, "Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings," with the following additional requirements or exceptions. All fittings shall be furnished with a cement-mortar lining of standard thickness as defined in referenced specifications.

All fittings shall be rated equally to the class of pipe. End connections may be push-on, mechanical, or flanged joints except where specifically shown otherwise on the plans or Standard Drawings.

Ductile iron compact fittings, per AWWA C153, are allowed.

- A. Flanges, Bolts and Gaskets - Flanges shall be flat-faced and meet either the requirements of AWWA C-207 for steel hub type flange fittings, or AWWA C-110 for ductile iron fittings. The flanges shall be marked with the size, name or trademark of the manufacturer and with the AWWA Class; i.e., "E", or pressure rating.

Bolts and nuts shall be cadmium plated, A307, Grade B of domestic origin. Cadmium plating shall conform to Federal Specification QQ-P-415-1956, Type 1, Class 1.

Gaskets shall be 1/8-inch thick and be of the full face self centered cloth impregnated type. The following table shows the bolt pattern for ASME/ANSI 16.1 Class 125 cast iron flange. This pattern is rated at 275 psi for Class E steel pipe flanges and 250 psi for ductile iron pipe fittings.

<u>Pipe Size</u>	<u>Bolt Hole Diameter (Inches)</u>	<u>Bolt Diameter & Length (Inches)</u>	<u>Number of Bolts</u>
6"	7/8	3/4 x 3 1/2	8
8"	7/8	3/4 x 3 1/2	8
10"	1	7/8 x 4	12
12"	1	7/8 x 4	12
14"	1 1/8	1 x 4 1/2	12
16"	1 1/8	1 x 4 1/2	16
18"	1 1/4	1 1/8 x 5	16

The Contractor shall uniformly tighten the bolts and prevent bending or torsional strains. Proper anchorage shall be provided.

- B. Mechanical Joint Fittings - The mechanical joints shall meet AWWA C111. That standard covers the joint as well as gaskets and bolts.

T-bolts and nuts shall be manufactured of corrosion-resistant high-strength low-alloy Cor-Ten steel or equal. Number and length of bolts shall be as follows:

<u>Pipe Size</u>	<u>Number of Bolts</u>	<u>Bolt Diameter & Length (Inches)</u>
6"	6	3/4 x 3 1/2
8"	6	3/4 x 4
10"	8	3/4 x 4
12"	8	3/4 x 4
14"	10	3/4 x 4
16"	12	3/4 x 4 1/2
18"	12	3/4 x 4 1/2

- C. Coatings and Linings - Cast iron fittings shall be cement mortar lined per AWWA C-104 and receive a bituminous coating per AWWA C110.

Threaded holes and mating surfaces shall not be coated. Flange faces shall be coated with asphaltic varnish only. There shall be no coating materials or mortar in gasket grooves.

- D. Mechanical Couplings - Couplings include transition couplings, flanged coupling adapters, flexible and insulated couplings.
1. Coupling Sleeves and Flanges - Coupling sleeves and flanges may be of gray iron or carbon steel.
 2. Bolts and Nuts for Flanges - Bolts and nuts for buried and submerged flanges, flanges in underground vaults and structures, and flanges located outdoors above ground shall be cadmium plated, A307, Grade B. Provide one washer for each nut. Each washer shall be of the same material as the nut.

PART 3: EXECUTION

3.01 HANDLING AND TRANSPORTATION

Handling and transportation of pipe shall be in accordance with the pipe manufacturer's published instructions.

Heavy canvas or nylon slings of suitable strength shall be used for lifting and supporting materials. Chains or cables shall not be used.

Pipe and fittings shall not be stored on rocks or gravel, or other hard material which might damage the pipe.

- A. Rubber Gasket Storage - All rubber gaskets shall be stored in a cool, well-ventilated place and should not be exposed to the direct rays of the sun. Gaskets shall not be allowed in contact with oils, fuels, petroleum, or solvents.

3.02 PIPE LAYING

Pipe shall be laid in accordance with the pipe manufacturer's published instructions, as complemented and modified herein and in the plans.

- A. Cleanliness - The interior of pipes shall be clean of foreign materials before sections of pipe are installed and shall be protected to prevent entry of foreign materials after installation.

Open ends of installed pipe shall be sealed with watertight plugs or other approved means at times when pipe installation is not in progress.

Ground water shall not be allowed to enter the pipe.

- B. Inspection Before Installation - All pipe and fittings shall be carefully examined for cracks and other defects just prior to installation. Spigot ends shall be examined with particular care as this area is the most vulnerable to damage from handling. Defective pipe or fittings shall be laid aside for inspection by the District, who will prescribe corrective repairs or rejection.

- C. Lowering of Pipe Material into Trench - Proper implements, tools, and equipment, satisfactory to the District, shall be provided and used by the Contractor, for the safe and convenient performance of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece in such a manner as to prevent damage to the water main materials and protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench.

If damage occurs to any pipe, fittings, valves, hydrants or water main accessories in handling, the damage shall be immediately brought to the District's attention.

- D. Laying of Pipe - Pipe shall be laid in trenches to the line and grade indicated on the plans and as specified.

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the trench. If the pipe laying crew cannot install the pipe into the trench without getting earth into it, the District Inspector may require a heavy tightly-woven-canvas bag of suitable size, or plastic caps to be placed over each end of the pipe prior to installation and left there until the connection is made to the adjacent pipe. During laying operations, no debris, tools, clothing or other material shall be placed in the pipe.

As each length of pipe is placed in the trench, the spigot end shall be centered in the bell or coupling, and the pipe forced home and brought to correct line and grade. The pipe shall be secured in place with approved backfill material tamped under it, except at the bells or couplings. Precautions shall be taken to prevent dirt from entering the joint space.

Joints shall be assembled in accordance with the manufacturer's instructions. Rubber rings and ring grooves shall not be lubricated. Each joint shall be checked with a feeler gauge to assure proper seating of the gasket.

- E. Cutting of Pipe - Field cuts and connections shall be in accordance with the pipe manufacturer's published instructions.

The cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe so as to leave a smooth end at right angles to the axis of the pipe. The pipe shall be marked around its entire circumference prior to cutting to assure a square cut. A factory-finished beveled end shall be used as a guide for proper bevel angle (15 degrees) and depth of bevel plus the distance to the insertion reference mark. The end shall be beveled using a PVC pipe beveling tool. Round off any sharp edges on the leading edge of the bevel with a pocket knife or a file.

When installing 8, 10 and 12-inch PVC pipe, mechanical joint or push-on type fittings designed for ductile iron pipe shall be used. When connecting PVC pipe into the bell end of cast iron pipe or into push-on type fittings, the end should be rebeveled, similar to the bevel on ductile iron pipe. When connecting to mechanical joint fittings, the end of the PVC pipe should not be beveled.

- F. Allowable Deflection - No deflection shall be allowed at the joints.

The maximum allowable angular deflection at twin-gasketed couplings shall be 4 degrees.

The pipe shall not be bent to a lesser radius than the minimum shown below:

<u>Size, inches</u>	<u>Minimum Radius of Curvature, Ft.</u>
4	190
6	200
8	250
10	Fittings required
12	Fittings required

- G. Locating Wire - Locating wire shall be installed with non-metallic water pipe as indicated on the Standard Drawings.
- H. Warning Tape - Warning tape shall be placed on top of pipe zone backfill centered over pipe as shown on the Standard Drawings.

3.03 FITTINGS

Fittings shall be installed in the manner specified herein for cleaning, laying and joining pipe.

- A. Anchorage for Fittings - All fittings, unless otherwise specified, shall be provided with a thrust block constructed against undisturbed soil.
- B. Thrust Blocks - Thrust blocks shall be constructed of Class B Concrete. Care shall be taken not to obstruct the outlets of tees or crosses which are intended for future connections. A waterproof paper or plastic bond-breaker shall be placed between plugs and caps and the concrete thrust block to facilitate their removal of the concrete in the future. Thrust blocks shall be poured against undisturbed earth and shall have at least the minimum dimensions shown on the Standard Drawings.

- C. Mechanical Couplings - Oil, scale, rust, and dirt shall be cleaned from pipe ends. The Contractor shall clean gaskets in couplings prior to installing the coupling in accordance with the manufacturer's recommendations:

Bolt threads shall be lubricated with graphite and oil prior to installation.

1. Painting and Coating -

- a. The Contractor shall coat buried flexible pipe couplings, transition couplings, and flanged coupling adapters with EID approved coating and then wrap the couplings with polyethylene wrap per AWWA C-105.
- b. The Contractor shall coat flexible pipe couplings (including joint harness assemblies), transition couplings, and flanged coupling adapters located indoors, in vaults and structures, and above-ground with the same coating system as specified for the adjacent pipe. A prime coat shall be applied at the factory.

- D. Polyethylene Wrap - All ferrous metal shall be protected with polyethylene wrap. When it is not practical to wrap tees, crosses, and other odd-shaped pieces in a tube the item shall be wrapped with a flat sheet or split length of polyethylene tube by passing the sheet under the appurtenance and bringing it up around the body. Seams shall be made by bringing the edges together, folding over twice, and taping down. Polyethylene shall be taped securely in place.

Cuts, tears, punctures, or damage to polyethylene shall be repaired with adhesive tape, or with polyethylene sheet secured in place with adhesive tape.

3.04 TESTING AND DISINFECTION

Testing and disinfection shall be performed on all pipelines in accordance with Section 01656.

END OF SECTION

EID SECTION 02645 – DOMESTIC SERVICE LINES AND APPURTENANCES

PART 1: GENERAL

1.01 SCOPE

This section governs materials and installation of the following:

- A. Service line materials and fittings
- B. Meter Boxes

1.02 SUBMITTALS

The following items shall be submitted and approved by the District.

- A. Manufacturer's catalog data showing model, part number, pressure ratings and materials of construction.

PART 2: MATERIALS

2.01 SERVICE LINE MATERIALS AND FITTINGS

Service line materials and fittings include service line pipe, service saddles, service fittings, meter stops, corporation stops, curb stops, and ball valves.

A. Polyethylene Tubing (PE) - PE tubing shall be in accordance with AWWA C901 and correspond to copper tubing size (CTS). The tubing shall be marked with the following:

- Nominal size
- Material code; i.e., PE 3406
- The word "Tubing" and dimension ratio
- AWWA pressure class; i.e., PC 160
- AWWA designation AWWA C901
- Manufacturer's name or trademark
- Seal of testing agency

The polyethylene material shall be type " 3408" conforming to ASTM D3350. The pressure class shall be a minimum of 200 psi.

Stainless steel liners or inserts shall be used with PE tubing when compression type connections are specified or shown.

B. Service Saddles - Service saddles shall be constructed of bronze, have AWWA iron pipe thread outlet taps, comply with AWWA C-800 "Threads for Underground Service Line Fittings" and have suitable means for attachment and sealing to a water main. The body shall be made to conform to outside configuration of the main. The service saddle shall be designed to provide a drip-tight connection when used as a service connection to the main. Saddles for ductile iron pipe shall be double strap. Straps for PVC pipe may also be stainless and shall provide full support around the circumference of the pipe and have a bearing area of sufficient width so that the pipe will not be distorted when the saddle is tightened.

C. Corporation Stops - Corporation stops shall be constructed of bronze, have AWWA iron pipe inlet threads, and shall comply with the requirements of AWWA C-800, "Threads for Underground Service Line Fittings." Outlets for ¾-inch and 1-inch corporation stops shall have "stab type" connectors for joining to CTS polyethylene tubing. Male iron pipe threads shall be provided on the outlet side of 1½-inch and 2-inch corporation stops.

D. Fittings - Fittings including PE tubing couplings, bends, unions, and adapters shall be constructed of bronze and shall be designed to join to CTS polyethylene tubing using a "stab type" connection (Mueller or approved equal) in ¾-inch and 1-inch sizes and compression type connections in 1½-inch and 2-inch sizes. Fittings shall also have male or female iron pipe-size-threaded ends and/or meter coupling nut or meter flange as required.

E. Angle Meter Stops - Angle meter stops shall be constructed of bronze, have lock wings and be suitable for joining to CTS polyethylene using a "stab type" connection for ¾-inch and 1-inch angle meter stops and a compression type connection for 1½-inch and 2-inch angle meter stops. Outlets for ¾-inch and 1-inch angle meter stops shall consist of a meter coupling nut. One-and-a-half inch and 2-inch angle meter stops shall have meter flange outlets.

2.02 METER BOXES

The meter boxes for ¾-inch, 1-inch, 1½-inch and 2-inch meters shall be concrete with steel lids in traffic areas. Plastic boxes and lids shall be used in non-traffic areas, according to the following:

<u>Meter Size</u>	<u>Box Inside Dimensions (Min.)</u>
¾ inch, 1 inch	10 x 17 inches
1½ inch, 2 inch	13 x 24 inches

PART 3: EXECUTION

3.01 POLYETHYLENE TUBING

Tubing and fittings should be stored in a way that prevents damage due to crushing or piercing, excessive heat, harmful chemicals, or exposure to sunlight for prolonged periods. The manufacturer's recommendations regarding storage should be followed.

Handling operations and trench installation and backfill shall be performed with reasonable care to prevent scratches, nicks, and gouges in the conduit.

Pipe excessively cut or kinked shall not be used.

Bends in PE tubing shall not occur closer than 10 diameters from any fitting or valve. The minimum radius of curvature is 30 diameters or the coil radius when bending with the coil. Bending of coiled tubing against the coil shall not go beyond straight. Polyethylene tubing that becomes kinked during handling or installation shall not be used, and care should be taken to ensure that kinking does not develop after installation. Service line from the main line tap to the angle meter stop shall be one continuous length of tubing.

PE tubing shall be installed in trench bottoms with 6-inches of bedding material to provide continuous and uniform support. The initial backfill shall be 6 inches above the tubing and shall be materials free from rock, stones, and debris.

3.02 SERVICE SADDLES

The service saddle shall be no closer than 18 inches to a valve, coupling, joint, or fitting, unless it is at the end of the main.

The surface of the pipe shall be free of all loose material and have a hard, clean surface before placing the service saddle.

The service saddle shall be tightened firmly to ensure a tight seal, however, care shall be used to prevent damage or distortion of either the pipe, corporation stop or service saddle by overtightening.

The drilling of the pipe shall be performed in accordance with the pipe manufacturer's recommendation.

3.03 FITTINGS, ANGLE METER STOPS, AND BOXES

Installation of fittings, meter stops, and boxes shall be as recommended by the manufacturer. Pipe or fittings made of nonferrous metals (bronze) shall be isolated from ferrous metals with insulating unions or couplings.

3.04 HYDROSTATIC TESTING

The Contractor shall hydrostatic test all appurtenances in place with the pipe being tested.

END OF SECTION

EID SECTION 02670 – ABANDONMENT OF FACILITIES

PART 1: GENERAL

1.01 SCOPE

This section governs abandonment of pipelines, manholes, vaults, and other existing structures.

1.02 SUBMITTALS

Upon request, schedules and method of abandonment shall be submitted to the District for approval.

PART 2: MATERIALS

2.01 GENERAL

Concrete, fittings, backfill material and other material used for abandonment shall comply with District Technical Specifications.

PART 3: EXECUTION

3.01 PIPELINES

Pipelines are to be abandoned by either plugging the ends or filling the entire pipeline with pumped concrete.

Pipelines to be abandoned, shall be securely closed at all pipe ends by an approved cap or, at manhole entries, by a watertight plug of concrete, or brick and cement mortar, not less than 2 feet thick. When laterals are abandoned, they shall be capped with an approved fitting at the property line.

Pipelines to be completely filled shall be pumped full with a concrete mix sufficiently workable for the purposes intended.

3.02 STRUCTURES

Structures to be abandoned shall have all openings, inlets and outlets sealed off and the structure shall be removed to a point 3 feet below the proposed street grade or ground surface and filled with backfill (compacted as directed) or concrete.

3.03 SALVAGED MATERIALS

Salvaged castings such as frames and covers and other appurtenances, unless otherwise specified, shall be delivered to a District facility prearranged with the Maintenance Supervisor.

END OF SECTION

EID SECTION 15062 - DUCTILE IRON PIPE

PART 1: GENERAL

1.01 DESCRIPTION

The work of this section consists of furnishing and installing ductile iron pipe material and main line fittings including laying, joining, bedding and approvals.

Fitting types covered under this section include bends, tees, crosses, reducers, couplings, caps, plugs, adapters and all other fittings necessary for a complete pipeline installation.

The Contractor shall also furnish all equipment, tools, labor and materials required to relocate sewers, conduits, ducts, pipes, or other structures as may be necessary to complete the installation as shown specified.

The Contractor shall be responsible for all material furnished by him, and shall replace at his own expense, all material found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishings of all material and labor required to replace defective material discovered prior to final acceptance of the work.

The Contractor shall be responsible for the safe storage of material until it has been incorporated into the completed project. The interior of all pipe and fittings shall be kept free from dirt and foreign matter at all times.

Pipe surfaces shall be free from nicks, scratches and other blemishes. The joining surfaces of pipe and spigots and bell sockets shall be free from gouges or other imperfections that might cause leakage.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02223: Trenching, Backfilling, and Compacting
- B. Section 15100: Valves

1.03 QUALITY ASSURANCE

Specification references shall be the latest edition and shall include: American National Standards Institute (ANSI), American Society for Testing and Materials (ASTM), Federal Specifications (FS), American Water Works Association (AWWA), and the manufacturers printed recommendations.

1.04 SUBMITTALS

Submittals shall be provided for the following items plus all additional items required in the specification for the particular type of type.

- A. Pipe, joint material, fittings, and specialties.
- B. Materials list and catalog data sheets naming each product to be used identified by manufacturer and type number.

1.05 PRODUCT HANDLING

Handle pipe and fittings in a manner to insure delivery in a sound undamaged condition.

PART 2: MATERIALS

2.01 DUCTILE IRON PIPE

- A. Pipe shall conform to ANSI A21.50 (AWWA C150), ANSI A21.51 (AWWA C151), and A21.4 (AWWA C104) as appropriate.

- B. Flanged pipe shall be per ANSI A21.15 (AWWA C350) pressure class:

14-24-inches	Class 350*
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*Must meet pressure requirement per contract pipe schedule and drawing

- C. Pipe wall thickness for grooved couplings shall be Class 54.
- D. Pipe wall thickness for push-on joint and mechanical joint pipe shall be Pressure Class 350 psi and thickness Class 52 minimum for pipe 14-24-inches.
- E. Pipe shall have 1/16-inch cement mortar lining and one mil bituminous coating per ANSI A21.4.
- F. Markings: Each standard and non standard length of pipe shall be clearly marked with the following:
 - 1. The letters "DI" or "Ductile"
 - 2. Nominal size and class
 - 3. Year produced
 - 4. Manufacturer's trade name and country where cast
 - 5. Seal (mark) of testing agency
- G. Laying Length: Standard laying length of each standard piece shall be 18-20 feet.
- H. Physical Test Requirements

Hydrostatic, tension test, and impact test shall be conducted at the factory in accordance with ASTM A 746. All testing shall be performed by a recognized laboratory with such testing available for inspection by the District. If required, the manufacturer shall supply a letter of certification attesting to their pipe meeting these specifications.

2.02 FITTINGS AND SPECIALS (EXCEPT GROOVED)

- A. Cast iron and ductile iron specials and fittings shall conform to ANSI A21.10 (AWWA C110), AWWA C-104, ANSI 21.53 (AWWA C153), C-111 with joints as shown on the Drawings or as required elsewhere in these Specifications or for the installation. Fittings shall have an asphaltic outside coating in accordance with ANSI/AWWA C153/A21.53, except as otherwise noted herein.
- B. Interior lining of specials and fittings shall match the adjoining specified pipe lining, except as otherwise noted herein. For glass lined, polyurethane, or polyethylene lined fittings, refer to Paragraphs 2.11, 2.12, and 2.13. All standard fittings shall be cement lined and seal coated with asphaltic material in accordance with ANSI/AWWA C104/A21.4, except as noted in Section C.
- C. No welded fittings or outlets are permitted.
- D. All fittings shall be rated equally to the class of the pipe. End connections may be mechanical, or flanged joints, as shown on the drawings.

2.03 FLANGES

- A. Flanges shall be flat-faced and meet the requirements of AWWA C-150 for ductile iron flanged fittings, along with the required working pressure of the pipeline. The flanges will be marked with the size, name or trademark of manufacturer and with the AWWA Class and pressure rating
- B. Flanges for spool pieces shall be factory installed threaded flanges. Flanges for fittings shall be cast integrally with the fitting.
- C. Bolts and nuts shall be cadmium plated, A307, Grade B of domestic origin. Cadmium plating shall conform to federal specifications QQ-P-415-1956, Type 1, Class 1.

2.04 MECHANICAL JOINT FITTINGS

The mechanical joints shall meet AWWA C111; the standard that covers the joint as well as gaskets and bolts. T-bolts and nuts shall be manufactured of corrosion-resistant high-strength low-alloy Cor-Ten steel or equal and must be rated to handle the working pressure of the pipeline.

2.05 MECHANICAL COUPLINGS

Couplings include transition couplings, flanged coupling adapters, flexible and insulated couplings.

- A. Coupling Sleeves and Flanges: Coupling sleeves and flanges may be of gray iron or carbon steel.
- B. Bolts and Nuts for Flanges: Bolts and nuts for buried and submerged flanges, flanges in underground vaults and structures, and flanges located outdoors above ground shall be cadmium plated, A307, Grade B. Provide one washer for each nut. Each washer shall be the same material as the nut.

2.06 RESTRAINED PUSH-ON JOINTS

Where specified, called for on the drawings, or otherwise required for thrust restraint, push-on joints shall be Flex-Ring as manufacturer by American Ductile Iron Pipe, TR Flex as manufactured by US Pipe, or equal. Restrained joint shall provide for joint deflection after assembly.

2.07 RUBBER GASKET FOR MECHANICAL OR PUSH ON JOINT

ANSI A21.11 (AWWA C111), vulcanized natural or vulcanized synthetic rubber.

2.08 FLANGED GASKETS

Ductile iron pipe flanged joints shall conform to ANSI/AWWA C115/A21.15. Gaskets for ductile iron flanged joints shall be ring type SBR elastomer per ANSI/AWWA C111/A21.11 and shall be 1/8" thickness. Flanged gaskets shall be the high performance type satisfying the special requirements of ANSI/AWWA C111/A21.11 Appendix C, Sec. C.2 and have at least (3) bulb type rings molded into both faces of the gasket. Flanged gaskets shall be U.S. Pipe RING FLANGE-TYTE Gasket or approved equal.

2.09 GROOVED FITTINGS

Cast iron, ASTM A 48, Class 30 A, cement lined. Victaulic, Gustin Bacon, or equal.

2.10 LINING AND COATING

Inside surfaces shall be cement mortar lined in accordance with ANSI/AWWA C-104/A21.4. The outside coating shall be an asphaltic coating per C-151. Threaded holes and mating surfaces shall not be coated. Flange faces shall be coated with asphaltic varnish only. There shall be no coating of materials, or mortar on gasket grooves.

2.11 WARNING TAPE

Minimum twelve-inch-wide non-metallic tape marked "Waterline".

2.12 POLYETHYLENE ENCASUREMENT

Buried piping, specials, and fittings shall be polyethylene encased, double wrapped - 8 mils thickness, sized to pipe diameter, ANSI/AWWA C105/A21.5, where indicated on the Drawings. Ductile iron pipe encasement shall be tube type.

PART 3: EXECUTION

3.01 HANDLING

Handling and transportation of pipe shall be in accordance with the pipe manufacturer's published instructions.

Heavy canvas or nylon slings of suitable strength shall be used for lifting and supporting materials. Chains or cables shall not be used.

Pipe and fittings shall not be stored on rocks or gravel, or other hard material which might damage the pipe.

Rubber gasket storage: All rubber gaskets shall be stored in a cool, well ventilated place and not exposed to the direct rays of the sun. Gaskets shall not be allowed in contact with oils, fuels, petroleum, or solvents.

3.02 INSTALLATION

- A. Bell and Spigot Ductile Iron Pipe. Where bell and spigot joints are used for joining ductile iron pipe, the joints shall be made using rubber rings, US "Tyton", Clow "Super Bell Tite" joint, or equal. Gasket seat, gasket, and spigot shall be thoroughly cleaned before assembly of joint. The entire procedure shall be in strict accordance with manufacturer's recommendations.
- B. Mechanical Joint Ductile Iron Pipe. Mechanical joints in ductile iron pipe shall be made as follows: Gland shall be placed on spigot end of pipe with lip extension toward the joint. The rubber gasket shall then be slipped on the pipe with its thick edge toward the gland. The gasket

and joint surfaces shall then be thoroughly wetted using a soapy solution made with vegetable soap or similar soap as recommended by the manufacturer. The spigot end of the pipe shall then be inserted to full depth of the mechanical joint socket and the gasket pressed firmly into place in the bell in order to obtain an even "set" all around the joint. The gland shall then be moved into place, the bolts inserted and the nuts taken up tightly with fingers. The nuts shall then be tightened gradually by wrench a half turn at a time, moving wrench from one nut to another repeating until all nuts are uniformly tight. Final tightness shall be with a torque wrench as follows: three quarter inch bolts 60 to 90 pounds torque, or as recommended by the manufacturer.

- C. Flanged Pipe: Flanged joints shall be made up square, with even pressure on the gaskets, and shall be watertight.
- D. Grooved Coupling: Grooved couplings shall be prepared or painted as necessary to obtain a leak free seal.
- E. Thrust Blocks: Thrust blocks shall be constructed of Class C concrete. Care shall be taken not to obstruct the outlets of tees and or crosses, which are intended for future connections. Thrust blocks shall be poured against earth and shall have at least the minimum dimensions shown in the details on the standard drawings.
- F. Polyethylene Encasement for External Corrosion Protection for Buried Piping
 - 1. General: Provide polyethylene encasement for all buried Ductile Iron Pipe, where indicated on the Drawings.
 - 2. Installation on Pipe
 - a. Pick up the pipe with a sling or pipe tongs. Slip a polyethylene tube which is approximately two feet longer than the pipe over the plain end and leave it bunched up accordion style.
 - b. Lower the pipe into the trench and make up the joint with the preceding pipe. Shallow bell holes are required to allow overlap of the tube at the joints.
 - c. Remove the sling or tong from the center of the pipe, raise the bell a few inches and slip the polyethylene tube along the pipe barrel, leaving approximately one foot of the tube bunched up at each end of the pipe for wrapping the joints.
 - d. Overlap each joint by first pulling one bunched up tube over the bell, folding it around the adjacent plain end, and securing it in place with two or three wraps of the polyethylene adhesive tape. Complete the overlap by repeating the same procedure with the bunched up tube on the adjacent pipe.
 - e. Take up the slack tube along the pipe barrel by folding it over the top of the pipe holding the fold in place with polyethylene adhesive tape.
 - f. Repair any rips, punctures or other damage to the polyethylene with tape or by cutting open a short length of tube, wrapping it around the pipe and securing with tape.
 - 3. Installation on Fittings, Valves and Piping Specialties
 - a. Fit bends, reducers and offsets with polyethylene tube in the same manner described above for pipe.
 - b. Wrap valves, tees, crosses and specialty items with a flat sheet obtained by splitting open a length of polyethylene tube. Pass the sheet under the valve or fitting and bring it up around the body. Join the seams by bringing the edges together, folding over twice and securing in place with tape.
 - c. Handle slack tube and overlapping at joints in the same manner described above for pipe.

- d. Prepare openings for service taps, air reliefs, etc., by making an X shaped cut in the polyethylene and temporarily folding back the edges. After installation is completed, replace the polyethylene and repair the cut with polyethylene adhesive tape.
4. Backfilling
- a. Care shall be taken not to damage the polyethylene.
 - b. Initial backfill material shall be free of rocks and debris which could puncture the polyethylene. If suitable backfill material is not available, felt roofing or similar material can be laid over the top of the pipe to protect the polyethylene.
 - c. In general, backfilling shall be done in accordance with AWWA Standard C600.

END OF SECTION

EID SECTION 15100 - VALVES

PART 1: GENERAL

1.01 DESCRIPTION

The work of this section consists of furnishing and installing valves used to throttle, isolate, and control flow in piping systems.

1.02 QUALITY ASSURANCE

Reference: American Society for Testing and Materials (ASTM).

American National Standards Institute (ANSI)

1.03 SUBMITTALS

- A. Materials list and catalog data sheets naming each product to be used identified by manufacturer and type number.
- B. Submit Operations and Maintenance Manuals for approval for all valves.

PART 2: MATERIALS

2.01 VALVES GENERAL

- A. All valve construction, materials, and pressure ratings shall be selected to suit the system in which installed.

Pressure rating and manufacturer's name shall be cast on each valve body. Where specified, valves shall be supplied fully packed with teflon impregnated packing. Where possible, valves shall be of one manufacturer.
- B. Stems of all bronze valves shall be silicon bronze or similar alloy to prevent de-zincification. Alloy shall have minimum tensile strength of 60,000 psi, minimum yield point of 24,000 psi per ASTM B584.
- C. Valves shall be furnished full line size unless specifically called out to be of reduced size. Flanges for valves may be raised or plain face. Flanges for valves for water working pressures of 175 psi

or less shall be full faced and drilled to 125 lb. standard dimensions. Valves for water working pressures greater than 175 psi shall match the flange and bolt hole pattern as the piping.

- D. Valves installed immediately adjacent to flanged equipment and flanged specialties shall be flanged, regardless of size.
- E. Valves in welded piping shall be flanged, regardless of size.
- F. All wetted rubber parts on the Treated Water Pipeline(s), including but not limited to the valve seats, shall be manufactured from chloramine resistant EPDM rubber.

2.02 BALL VALVES (BV) (1" THROUGH 12")

- A. General: Ball valves shall be of the non-lubricated, rated for the working pressure stated on the contract drawings. Valves 4-inches through 20-inches will have a minimum of 80% port area.
- B. Connections: Screwed, or flanged, as shown on the drawings or required for the installation. Flanges shall be faced and drilled to the requirements of ANSI B16.1.

C. Working Pressures:

Screwed: 900 psi

Flanged: ANSI Class 150 = 275 psi

ANSI Class 300 = 720 psi

ANSI Class 600 = 1440 psi @ 100 degrees Fahrenheit < 2-inches diameter

D. Materials

- 1. Body: Stainless Steel, tape coated per Pipeline Specifications.
- 2. Seat: Reinforced Teflon
- 3. Stem: 316 Stainless Steel, Blow out proof design
- 4. Ball: Stainless Steel.
- 5. Shaft Seals: Reinforced Teflon.

E. Operators

- 1. Unless otherwise shown or required, operators on exposed valves shall have open and closed position stops, position indicator, type as follows:
 - a. 3-inches and smaller: fixed lever
 - b. 4-inches: lever on 2-inch square operating nut
 - c. 6-inches and larger: enclosed worm gear with handwheel. Maximum 80 lb. rim pull to actuate the valve at its full bi-directional operating pressure.
 - d. Chainwheel actuators shall be provided where shown on drawings.

F. Ball Valves shall be Marwin, Flow-Tek Apollo or equal

2.03 CHECK VALVES (CV)

Check valves for design pressures in excess of 250 psig shall be globe style silent check valves. The valve shall be designed to completely close prior to flow reversal through the valve. Valve shall be ANSI Class 600, designed for a working pressure of 1,440 psi, at a temperature not exceeding 100 degrees F.

The valve body shall be stainless steel, ASTM A351 CF 8M, flanged. The trim shall be stainless steel with a Buna-N resilient seat.

2.04 BUTTERFLY VALVES (BFV) (THROUGH 36")

A. Manufacturers: One of the following or equal:

1. DeZurik.
2. Henry Pratt Company.

B. Valve Design:

1. Butterfly valves shall conform with the following table:

Class	Standard	Allowable Working Pressure	Materials	
			Valve Body	Valve Disc
AWWA 150B	AWWA C504	150 psi	Cast Iron ASTM A48 or Ductile Iron ASTM A536	Cast Iron ASTM A 48 or Ductile Iron ASTM A 536
AWWA 250	AWWA C504	250 psi	Ductile Iron ASTM A536	Ductile Iron ASTM A536
ANSI 300	ANSI	350 psi	316 Stainless Steel	Stainless Steel

2. Valve Ends: Shall be Flanged compatible with piping system and pressure class.

C. Shaft and Bearings

1. Type 304 or 316 stainless steel. Shaft and disc must be double of set design for the Class 600 valve.
2. Thrust Bearings: Self-lubricating, sleeve type. Bearings: Reinforced teflon lined with fiberglass backing, or polytetrafluoroethylene with phenolic or stainless steel backing. Bearing shall be designed for the rated pressure of the valve.

D. Disc Pins: Secure valve disc to shaft by means of solid, smooth sided, Type 316 stainless steel or monel, taper or dowel pin. Extend pins through shaft and mechanically secure in place. Disc pins shall be designed for the rated pressure of the valve.

E. Seats: Seats shall be drip tight in both directions and designed for the rated pressure of the valve.

F. Butterfly Valve Operators

1. Manual operators shall be totally enclosed gear type with a suitable indicator arrow to give valve position at any point from full open to fully closed.

2. Manual Operators for Valves less than 6-inch diameter:
 - a. Hand lever type with a locking device so that the valve can be locked in any position with a wing nut.
 - b. Locking Device: Rigid, allowing no vibration or chattering of the valve.
 - c. Hand Lever: 12-inches long with a hand grip.
3. Provide underground valves 6-inches in nominal size and larger with a totally enclosed worm gear operator mounted on the valve. Operator shall be suitable for buried service.
 - a. Provide an AWWA 2-inch square operating nut with ground level position indication.
 - b. Valve Shaft: Extend from the valve to the operator.
 - c. Geared Operator: Gasketed for watertightness.
3. Provide limit switches for manual valves where shown on drawings.
4. Manual Operators on Aboveground Butterfly Valves Larger than 6-inches in Nominal Size: Worm geared with hand wheels.
5. Electric Operators as manufactured by Auma.

G. Fabrication

1. Shop coat interior and exterior ferrous metal surfaces of valves and accessories, except as follows:
 - a. Finished surfaces.
 - b. Bearing surfaces.
 - c. Stainless steel components.
2. Surface Coatings: All internal and/or external surfaces shall be covered with a polyimide cured epoxy coating applied over a sand blasted "new white metal surface" per SSPC-SP10 to a minimum of 16 mils in compliance with AWWA C550.
3. Dielectric tape wrap or shrink wrap all stainless steel valves in accordance with pipeline specifications.
4. Coating Materials:

High Solids Epoxy

 - a. Application: Shop apply to iron and steel surfaces, except stainless steel.
 - b. Product: Two part epoxy with a minimum dry film thickness (DFT) of 16 mils, meeting NSF 61 compliance.
 - c. Quality Control: After coating is cured, check coated surface for porosity with a holiday detector set at 1,800 volts, or as specified by coating manufacturer and per AWWA C213.
 - 1) Repair holidays and other irregularities and retest coating.
 - 2) Repeat procedure until holidays and other irregularities are corrected.
 - d. Additional field coating, other than touchup coating of damaged surfaces, will not be required.
 - 1) Perform touchup coating within the recoat time recommended by the coating manufacturer.

- 2) When touchup coating is required after expiration of the recoat time, precede coating by blast cleaning or other surface preparation recommended by the manufacturer of the coating material for satisfactory adhesion between coats.

2.05 VALVE BOXES (VB)

Inside dimension of concrete box shall accommodate valve body with a minimum of 4-inches clear on all sides of valve.

2.06 AIR VALVES

- A. General: Air valves shall be of the size shown on the drawings with flanged or screwed ends to suit the installation and working pressure as shown on the drawings. Valves shall be fabricated stainless steel or cast iron body with stainless steel trim. Valves shall be designed for the working pressure shown on the contract drawings. Valve seals shall be suitable for the pressure range in the pipeline.
- B. Air Release Valve (ARV): Valves shall be designed to vent accumulating air while the system is in operation and under pressure.
- C. Air and Vacuum Valve (AVV): Valves shall be designed to pass large quantities of air either out of or into the pipeline during filling or draining operations.
- D. Combination Air Valve (CAV): Valve shall perform both as an air release valve and as an air and vacuum valve as described above.
- E. Manufacturer: APCO; Cla-Val; Crispin; Val-Matic; or Vent-O-Mat.
- F. Coating: Internal and external coating shall be fusion bonded epoxy, unless the valve body is stainless steel.

2.07 GLOBE VALVES

- A. Design: Valve rated for 350 psi pressures as shown on contract drawings, at 150 degrees F, piloted for pressure reducing or pressure release service with settings as indicated on contract drawings.
- B. Materials: Body and bonnet shall be constructed of cast iron, conforming to ASTM A 126 class B. Disc shall be bronze faced. Trim shall be stainless steel.
- C. Manufacturers: CLA-VAL, Bermad or equal.
- D. Coating: Internal and external coating shall be fusion bonded epoxy, unless the valve body is stainless steel.
- E. Speed Control: Speed controls shall be provided for both opening and closing.

PART 3: EXECUTION

- 3.01 All valves and gates shall be installed in the manner and location shown on the plans in strict accordance with manufacturer's recommendations.
- 3.02 Buried valves with operating nuts shall be provided with covered valve boxes at grade. Where operating nut is more than 36-inches below grade, an extension shall be installed to bring the operator nut to not less than 24-inches below grade.

END OF SECTION

EID MEASUREMENT AND PAYMENT SCHEDULE

Items No. 79 & 85: Mobilization / Demobilization

- a.) Measurement – The mobilization and demobilization will be measured on a lump sum basis.
- b.) Payment – Includes, but not limited to, obtaining all permits, costs to mobilize and demobilize all equipment and personnel to the project site, submittals, final project cleanup, and the submittal of a project construction schedule for the respective portion of the EID waterline work. Also includes bonds and insurance specified for this portion of work, which includes overhead, profit, and markup. Payment will be made based on the percentage of work actually completed by the Contractor.

Items No. 80 & 86: Sheeting, Shoring, and Bracing

- a.) Measurement – The sheeting, shoring, and bracing will be measured on a lump sum basis.
- b.) Payment – Includes the furnishing, installing, maintaining, and removing of sheeting, shoring, and bracing or equivalent method for the protection of life and limb in trenches and open excavations as required by the Labor Code of the State of California, Construction Safety Orders of the Revision of Industrial Safety of the State of California, and California Occupational Safety Act of 1973, for the respective portion of the EID waterline work. Payment will be made based on the percentage of work actually completed by the Contractor.

Item No. 81: 6" Waterline

- a.) Measurement – Pipeline Construction will be measured in linear feet of pipe, complete in place, along the centerline of the pipe from the points of connection to the end of new pipe. The length of pipe will be measured without deduction for valves or fittings installed by the Contractor.
- b.) Payment – Includes the furnishing and installation of 6-Inch Pressure Class 150 Polyvinyl Chloride piping; excavation; bedding; pipe laying; backfilling; dewatering; thrust blocks; CLSM; concrete or other import; compacting; outlets and stub-outs; fittings; gripper rings; tees; locating wire; warning tape; polyethylene wrap; removal, replacement, and reconnection of the 1" services lines; transporting and disposal of existing asbestos cement pipe; road maintenance and pavement replacement per County permitting requirements, and all other appurtenances to make a complete pipeline installation, for the 6-inch EID waterline work, including the domestic service line connections, as specified in the Standards, Specifications and Plans. Payment will be made by applying the unit price to the number of linear feet of 6-inch waterline actually installed by the Contractor.

Item No. 87: 20" Transmission Main

- a.) Measurement – Pipeline Construction will be measured in linear feet of pipe, complete in place, along the centerline of the pipe from the points of connection to the end of new pipe. The length of pipe will be measured without deduction for valves or fittings installed by the Contractor.
- b.) Payment – Includes the furnishing and installation of 20-Inch Pressure Class 350 TR Flex Ductile Iron piping, excavation, bedding, pipe laying, backfilling, thrust blocks, dewatering, CLSM, concrete or other import, compacting, outlets and stub-outs, fittings, gripper rings, tees, locating wire, warning tape, polyethylene wrap, road maintenance and pavement replacement per County permitting requirements, and all other appurtenances to make a complete pipeline installation, for the 20-inch EID waterline work, as specified in the Standards, Specifications and Plans. Payment will be made by applying the unit price to the number of linear feet of 20-inch transmission main actually installed by the Contractor.

Item No. 88: 20" Butterfly Valve

- a.) Measurement – The 20-Inch butterfly valve will be measured on a lump sum basis.
- b.) Payment – Includes, but not limited to, the furnishing and installation of 20-Inch ANSI Class 300 high performance butterfly valves, excavation, backfill, valve riser, valve box with lid and marker post and appurtenances, valve extension, flange kits, adaptors, testing, concrete, and all other appurtenances to make a complete installation, for the respective portion of the EID waterline work. Payment will be made based on the percentage of work actually completed by the Contractor.

Item No. 89: 4" Blow-Off Valve Assembly

- a.) Measurement – Furnishing and installing a 4-Inch blow-off valve assembly and appurtenances will be measured on a lump sum basis.
- b.) Payment – Includes, but not limited to, the furnishing and installation of 4-Inch blow-off valve assembly, excavation, backfill, drain rock, piping, tees, isolation valves, flange kits, blow-off valve, valve enclosure, valve extension, valve box, concrete, and valve supports, thrust blocks, and all other appurtenances to make a complete installation, for the respective portion of the EID waterline work. Payment will be made based on the percentage of work actually completed by the Contractor.

Item No. 82: 2" Air Release Valve Assembly

- a.) Measurement – The 2-Inch air release valve will be measured on a lump sum basis.
- b.) Payment – Includes, but not limited to, the furnishing and installation of 2-Inch air release valve assembly, excavation, backfill, drain rock, piping, tees, concrete, isolation valves, flange kits, air valve, valve enclosure, valve extension, valve box, and valve supports, and all other appurtenances to make a complete installation, for the respective portion of the EID waterline work. Payment will be made based on the percentage of work actually completed by the Contractor.

Item No. 90: 2" Combination Air Valve Assembly

- a.) Measurement – The 2-Inch combination air valve assembly will be measured on a lump sum basis.
- b.) Payment – Includes, but not limited to, the furnishing and installation of 2-Inch combination air valve assembly, excavation, backfill, drain rock, piping, tees, concrete, isolation valves, flange kits, air valve, valve enclosure, valve extension, valve box, and valve supports, and all other appurtenances to make a complete installation, for the respective portion of the EID waterline work. Payment will be made based on the percentage of work actually completed by the Contractor.

Item No. 91: Surge Relief Bypass

- a.) Measurement – The surge relief bypass will be measured on a lump sum basis.
- b.) Payment – Includes the furnishing and installation of all necessary materials for a surge relief bypass, such as, valves, orifice plates, gaskets, thrust restraints and valve box and all other appurtenances to make a complete installation, for the respective portion of the EID waterline work. Payment will be made on the percentage of work actually completed by the Contractor.

Items No. 83 & 92: Testing and Disinfection

- a.) Measurement – The testing and disinfection will be measured on a lump sum basis.
- b.) Payment – Includes, all labor, permits, licenses, certifications, equipment, and materials to provide disinfection, hydrostatic testing, flushing, disinfection neutralization, and disposal of all flush water associated with the pipelines and appurtenances for the respective EID waterline work. The flush water must be free of disinfectant and must meet all applicable county, state, and federal standards before being discharged into Tennessee Creek, or off-hauled to another location for proper disposal. Payment will be made based on the percentage of work actually completed by the Contractor.

Items No. 84 & 93: 6” & 20” Waterline Tie-In Connections

- a.) Measurement – The tie-in connections will be measured on a lump sum basis.
- b.) Payment – Includes, but not limited to, the tying-in of both ends of the new 6” and 20” pipeline sections into the existing EID pipelines, trenching, bedding, pipe laying, backfilling, CLSM, concrete or other import, compacting, outlets and stub-outs, fittings, gripper rings, tees, locating wire, warning tape, disinfection, polyethylene wrap, road maintenance pavement replacement per County permitting requirements, abandonment of facilities, and all other appurtenances to correctly tie-in the 6” and 20” pipeline sections for the respective EID waterline work, per the District’s standards and specifications. Payment will be made for each tie-in actually completed by the Contractor.

APPENDIX D
to the contract documents for
Green Valley Road at Tennessee Creek – Bridge Replacement Project
Contract No. PW 09-30407 / CIP No. 77109

FEDERAL WAGE RATES

FEDERAL WAGE RATES

GENERAL DECISION: CA20100009 12/03/2010 CA9

Date: December 3, 2010

General Decision Number: CA20100009 12/03/2010

Superseded General Decision Number: CA20080009

State: California

Construction Types: Building, Heavy (Heavy and Dredging) and Highway

Counties: Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Marin, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano, Sonoma, Sutter, Tehama, Trinity, Yolo and Yuba Counties in California.

BUILDING CONSTRUCTION PROJECTS (excluding Amador County only); DREDGING CONSTRUCTION PROJECTS (does not include hopper dredge work); HEAVY CONSTRUCTION PROJECTS (does not include water well drilling); AND HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	03/26/2010
2	07/02/2010
3	07/09/2010
4	08/13/2010
5	08/27/2010
6	09/10/2010
7	09/24/2010
8	10/01/2010
9	10/15/2010
10	10/29/2010
11	11/05/2010
12	11/19/2010
13	12/03/2010

ASBE0016-001 01/01/2010

AREA 1: ALAMEDA, CONTRA COSTA, LAKE, MARIN, MENDOCINO, MONTEREY, NAPA, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, & SONOMA COUNTIES

AREA 2: ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, DEL NORTE, EL DORADO, FRESNO, GLENN, HUMBOLDT, KINGS, LASSEN, MADERA, MARIPOSA, MERCED, MODOC, MONO, NEVADA, PLACER, PLUMAS, SACRAMENTO, SAN JOAQUIN, SHASTA, SIERRA, SISKIYOU, STANISLAU, SUTTER, TEHEMA, TRINITY, TULARE, TUOLUMNE, YOLO, & YUBA COUNTIES

Rates Fringes

Asbestos Workers/Insulator
(Includes the application of all insulating materials, Protective Coverings,

Green Valley Road at Tennessee Creek – Bridge Replacement Project
Contract No. PW 09-30407 / CIP No. 77109
January 11, 2011

County of El Dorado, DOT
Appendix D – Federal Wage Rates
Page AD-I

Coatings, and Finishes to all types of mechanical systems)

Area 1.....	\$ 50.43	16.66
Area 2.....	\$ 39.78	16.66

ASBE0016-007 01/01/2010

	Rates	Fringes
Asbestos Removal worker/hazardous material handler (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not)....	\$ 15.18	2.80

BOIL0549-002 01/01/2009

	Rates	Fringes
BOILERMAKER		
(1) Marin & Solano Counties..	\$ 40.17	22.32
(2) Remaining Counties.....	\$ 37.01	22.25

BRCA0003-001 08/01/2008

	Rates	Fringes
MARBLE FINISHER.....	\$ 28.02	12.12

BRCA0003-004 05/01/2010

AREA 1: ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SUTTER, TEHAMA, YOLO AND YUBA COUNTIES

AREA 2: MARIN, NAPA, SISKIYOU, SOLANO, SONOMA AND TRINITY COUNTIES

	Rates	Fringes
BRICKLAYER		
AREA 1.....	\$ 33.86	18.24
AREA 2.....	\$ 39.10	20.97

SPECIALTY PAY:

- (A) Underground work such as tunnel work, sewer work, manholes, catch basins, sewer pipes and telephone conduit shall be paid \$1.25 per hour above the regular rate. Work in direct contact with raw sewage shall receive \$1.25 per hour in addition to the above.
- (B) Operating a saw or grinder shall receive \$1.25 per hour above the regular rate.
- (C) Gunite nozzle person shall receive \$1.25 per hour above the regular rate.

BRCA0003-008 07/01/2009

	Rates	Fringes
TERRAZZO FINISHER.....	\$ 30.25	11.57
TERRAZZO WORKER/SETTER.....	\$ 38.93	19.32

BRCA0003-010 04/01/2009

	Rates	Fringes
TILE FINISHER		
Area 1.....	\$ 21.08	8.62
Area 2.....	\$ 21.16	11.02
Area 3.....	\$ 21.34	10.89
Area 4.....	\$ 20.83	10.37
Tile Layer		
Area 1.....	\$ 35.95	10.42
Area 2.....	\$ 34.31	12.12
Area 3.....	\$ 38.51	12.17
Area 4.....	\$ 35.35	12.12

AREA 1: Butte, Colusa, El Dorado, Glenn, Lassen, Modoc,
Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Sutter,
Tehema, Yolo, Yuba
AREA 2: Alpine, Amador
AREA 3: Marin, Napa, Solano, Siskiyou
AREA 4: Sonoma

BRCA0003-014 08/01/2008

	Rates	Fringes
MARBLE MASON.....	\$ 39.22	18.58

CARP0034-001 07/01/2009

	Rates	Fringes
Diver		
Assistant Tender, ROV		
Tender/Technician.....	\$ 35.75	24.16
Diver standby.....	\$ 40.33	24.16
Diver Tender.....	\$ 39.33	24.16
Diver wet.....	\$ 80.66	24.16
Manifold Operator (mixed gas).....	\$ 44.33	24.16
Manifold Operator (Standby).\$	39.33	24.16

DEPTH PAY (Surface Diving):
050 to 100 ft \$2.00 per foot
101 to 150 ft \$3.00 per foot
151 to 220 ft \$4.00 per foot

SATURATION DIVING:

The standby rate shall apply until saturation starts. The saturation diving rate applies when divers are under pressure continuously until work task and decompression are

complete. The diver rate shall be paid for all saturation hours.

DIVING IN ENCLOSURES:

Where it is necessary for Divers to enter pipes or tunnels, or other enclosures where there is no vertical ascent, the following premium shall be paid: Distance traveled from entrance 26 feet to 300 feet: \$1.00 per foot. When it is necessary for a diver to enter any pipe, tunnel or other enclosure less than 48" in height, the premium will be \$1.00 per foot.

WORK IN COMBINATION OF CLASSIFICATIONS:

Employees working in any combination of classifications within the diving crew (except dive supervisor) in a shift are paid in the classification with the highest rate for that shift.

 CARP0034-003 07/01/2010

	Rates	Fringes
Piledriver.....	\$ 36.75	24.86

 * CARP0035-001 08/01/2010

AREA 1: MARIN, NAPA, SOLANO & SONOMA

AREA 3: SACRAMENTO

AREA 4: ALPINE, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO & YUBA

	Rates	Fringes
Drywall Installers/Lathers:		
Area 1.....	\$ 37.50	23.58
Area 3.....	\$ 31.67	23.58
Area 4.....	\$ 30.77	23.58
Drywall Stocker/Scrapper		
Area 1.....	\$ 18.75	14.40
Area 3.....	\$ 15.84	14.40
Area 4.....	\$ 15.39	14.40

 * CARP0035-009 07/01/2010

Marin County

	Rates	Fringes
CARPENTER		
Bridge Builder/Highway Carpenter.....	\$ 37.50	23.14
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 37.65	23.14

Journeyman Carpenter.....	\$ 37.50	23.14
Millwright.....	\$ 37.60	24.73

CARP0035-010 07/01/2010

AREA 1: Marin, Napa, Solano & Sonoma Counties

AREA 2: Alpine, San Benito and Santa Cruz

AREA 3: Alpine, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo & Yuba counties

	Rates	Fringes
Modular Furniture Installer		
Area 1		
Installer I.....	\$ 22.11	14.98
Installer II.....	\$ 18.68	14.98
Lead Installer.....	\$ 25.56	15.48
Master Installer.....	\$ 29.78	15.48
Area 2		
Installer I.....	\$ 19.46	14.98
Installer II.....	\$ 16.51	14.98
Lead Installer.....	\$ 22.43	15.48
Master Installer.....	\$ 26.06	15.48
Area 3		
Installer I.....	\$ 18.51	14.98
Installer II.....	\$ 15.74	14.98
Lead Installer.....	\$ 21.31	15.48
Master Installer.....	\$ 24.73	15.48

* CARP0046-001 07/01/2010

El Dorado (West), Placer (West), Sacramento and Yolo Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway		
Carpenter.....	\$ 37.50	23.14
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 31.32	23.14
Journeyman Carpenter.....	\$ 31.17	23.14
Millwright.....	\$ 33.67	24.73

Footnote: Placer County (West) includes territory West of and including Highway 49 and El Dorado County (West) includes territory West of and including Highway 49 and territory inside the city limits of Placerville.

* CARP0046-002 07/01/2010

Alpine, Colusa, El Dorado (East), Nevada, Placer (East), Sierra, Sutter and Yuba Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 37.50	23.14
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 30.42	23.14
Journeyman Carpenter.....	\$ 30.27	23.14
Millwright.....	\$ 32.77	24.73

* CARP0152-003 07/01/2010

Amador County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 37.50	23.14
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 30.42	23.14
Journeyman Carpenter.....	\$ 30.27	23.14
Millwright.....	\$ 32.77	24.73

* CARP0180-001 07/01/2010

Solano County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 37.50	23.14
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 37.65	23.14
Journeyman Carpenter.....	\$ 37.50	23.14
Millwright.....	\$ 37.60	24.73

* CARP0751-001 07/01/2010

Napa and Sonoma Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 37.50	23.14
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold &		

Steel Shoring Erector, Saw		
Filer.....	\$ 37.65	23.14
Journeyman Carpenter.....	\$ 37.50	23.14
Millwright.....	\$ 37.60	24.73

 * CARP1599-001 07/01/2010

Butte, Glenn, Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama
 and Trinity Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway		
Carpenter.....	\$ 37.50	23.14
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw		
Filer.....	\$ 30.42	23.14
Journeyman Carpenter.....	\$ 30.27	23.14
Millwright.....	\$ 32.77	24.73

 ELEC0006-002 12/01/2008

MARIN, NAPA, SOLANO & SONOMA COUNTIES

	Rates	Fringes
Sound & Communications		
Installer.....	\$ 29.87	3%+11.95
Technician.....	\$ 34.01	3%+11.95

SCOPE OF WORK INCLUDES-

SOUND & VOICE TRANSMISSION (Music, Intercom, Nurse Call, Telephone); FIRE ALARM SYSTEMS [excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs], TELEVISION & VIDEO SYSTEMS, SECURITY SYSTEMS, COMMUNICATIONS SYSTEMS that transmit or receive information and/or control systems that are intrinsic to the above.

EXCLUDES-

Excludes all other data systems or multiple systems which include control function or power supply; excludes installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excludes energy management systems.

 ELEC0180-001 06/01/2010

NAPA AND SOLANO COUNTIES

	Rates	Fringes
CABLE SPLICER.....	\$ 46.92	3%+18.10

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ELECTRICIAN.....\$ 41.71 3%+18.10

* ELEC0340-002 12/01/2010

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN,
NEVADA, PLACER, PLUMAS, SACRAMENTO, TRINITY, YOLO, YUBA COUNTIES

	Rates	Fringes
Communications System		
Sound & Communications		
Installer.....	\$ 24.13	3%+10.65
Sound & Communications		
Technician.....	\$ 27.75	3%+10.65

SCOPE OF WORK

Includes the installation testing, service and maintenance, of the following systems which utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, security and entertainment purposes for the following TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call system, radio page, school intercom and sound, burglar alarms, and low voltage master clock systems.

A. SOUND AND VOICE TRANSMISSION/TRANSFERENCE SYSTEMS

Background foreground music Intercom and telephone interconnect systems, Telephone systems, Nurse call systems, Radio page systems, School intercom and sound systems, Burglar alarm systems, Low voltage master clock systems, Multi-media/multiplex systems, Sound and musical entertainment systems, RF systems, Antennas and Wave Guide.

B. FIRE ALARM SYSTEMS

Installation, wire pulling and testing

C. TELEVISION AND VIDEO SYSTEMS Television monitoring and surveillance systems, Video security systems, Video entertainment systems, Video educational systems, Microwave transmission systems, CATV and CCTV

D. SECURITY SYSTEMS Perimeter security systems
Vibration sensor systems Card access systems Access control systems Sonar/infrared monitoring equipment

E. COMMUNICATIONS SYSTEMS THAT TRANSMIT OR RECEIVE INFORMATION AND/OR CONTROL SYSTEMS THAT ARE INTRINSIC TO THE ABOVE LISTED SYSTEMS SCADA (Supervisory Control and Data Acquisition) PCM (Pulse Code Modulation)
Inventory Control Systems Digital Data Systems
Broadband and Baseband and Carriers Point of Sale Systems VSAT Data Systems Data Communication Systems RF and Remote Control Systems Fiber Optic Data Systems
WORK EXCLUDED Raceway systems are not covered (excluding Ladder-Rack for the purpose of the above listed systems). Chases and/or nipples (not to exceed 10 feet)

may be installed on open wiring systems. Energy management systems. SCADA (Supervisory Control and Data Acquisition) when not intrinsic to the above listed systems (in the scope). Fire alarm systems when installed in raceways (including wire and cable pulling) shall be performed at the electrician wage rate, when either of the following two (2) conditions apply:

1. The project involves new or major remodel building trades construction.
2. The conductors for the fire alarm system are installed in conduit.

ELEC0340-003 06/01/2010

ALPINE (West of Sierra Mt. Watershed), AMADOR, BUTTE, COLUSA, EL DORADO (West of Sierra Mt. Watershed), GLENN, LASSEN, NEVADA (West of Sierra Mt. Watershed), PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA (West of Sierra Mt. Watershed), SUTTER, TEHAMA, TRINITY, YOLO & YUBA COUNTIES

	Rates	Fringes
ELECTRICIAN		
Remaining area.....	\$ 38.93	3%+13.25
Sierra Army Depot, Herlong..	\$ 48.66	3%+13.25
Tunnel work.....	\$ 40.88	3%+13.25

CABLE SPLICER: Receives 110% of the Electrician basic hourly rate.

ELEC0401-005 12/01/2009

ALPINE (east of the main watershed divide), EL DORADO (east of the main watershed divide), NEVADA (east of the main watershed), PLACER (east of the main watershed divide) and SIERRA (east of the main watershed divide) COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 35.40	13.02+3%

ELEC0551-004 06/01/2009

MARIN AND SONOMA COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 44.00	3%+13.00

ELEC0659-006 01/01/2010

DEL NORTE, MODOC and SISKIYOU COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 29.78	3%+13.30

ELEC0659-008 02/01/2010

DEL NORTE, MODOC & SISKIYOU COUNTIES

	Rates	Fringes
Line Construction		
(1) Cable Splicer.....	\$ 47.34	13.74
(2) Lineman, Pole Sprayer, Heavy Line Equipment Man....	\$ 42.27	13.54
(3) Tree Trimmer.....	\$ 29.70	9.94
(4) Line Equipment Man.....	\$ 36.35	10.85
(5) Powdermen, Jackhammermen.....	\$ 31.90	10.00
(6) Groundman.....	\$ 29.59	10.24

 ELEC1245-004 06/01/2009

ALL COUNTIES EXCEPT DEL NORTE, MODOC & SISKIYOU

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer..	\$ 44.47	13.11
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment).....	\$ 35.52	12.07
(3) Groundman.....	\$ 27.17	11.82
(4) Powderman.....	\$ 39.71	12.23

HOLIDAYS: New Year's Day, M.L. King Day, Memorial Day,
 Independence Day, Labor Day, Veterans Day, Thanksgiving Day
 and day after Thanksgiving, Christmas Day

 ELEV0008-001 01/01/2010

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 54.89	20.035

FOOTNOTE:

PAID VACATION: Employer contributes 8% of regular hourly
 rate as vacation pay credit for employees with more than 5
 years of service, and 6% for 6 months to 5 years of service.
 PAID HOLIDAYS: New Years Day, Memorial Day, Independence Day,
 Labor Day, Veterans Day, Thanksgiving Day, Friday after
 Thanksgiving, and Christmas Day.

 ENGI0003-008 07/01/2009

	Rates	Fringes
Dredging: (DREDGING: CLAMSHELL & DIPPER DREDGING; HYDRAULIC SUCTION DREDGING:) AREA 1:		

(1) Leverman.....	\$ 38.94	22.58
(2) Dredge Dozer; Heavy duty repairman.....	\$ 33.98	22.58
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator.....	\$ 32.86	22.58
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler..	\$ 29.56	22.58
AREA 2:		
(1) Leverman.....	\$ 40.94	22.58
(2) Dredge Dozer; Heavy duty repairman.....	\$ 35.98	22.58
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator.....	\$ 34.86	22.58
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler..	\$ 31.56	22.58

AREA DESCRIPTIONS

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED,
NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN,
SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS,
SUTTER, YOLO, AND YUBA COUNTIES

AREA 2: MODOC COUNTY

THE REMAINGING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2
AS NOTED BELOW:

ALPINE COUNTY:

Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:

Area 1: Remainder
Area 2: Eastern part

COLUSA COUNTY:

Area 1: Eastern part
Area 2: Remainder

ELDORADO COUNTY:

Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY:

Area 1: Remainder
Area 2: Eastern part

GLENN COUNTY:

Area 1: Eastern part
Area 2: Remainder

LASSEN COUNTY:

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Area 1: Western part along the Southern portion of border
with Shasta County
Area 2: Remainder

MADERA COUNTY:

Area 1: Except Eastern part
Area 2: Eastern part

MARIPOSA COUNTY

Area 1: Except Eastern part
Area 2: Eastern part

MONTERREY COUNTY

Area 1: Except Southwestern part
Area 2: Southwestern part

NEVADA COUNTY:

Area 1: All but the Northern portion along the border of
Sierra County
Area 2: Remainder

PLACER COUNTY:

Area 1: Al but the Central portion
Area 2: Remainder

PLUMAS COUNTY:

Area 1: Western portion
Area 2: Remainder

SHASTA COUNTY:

Area 1: All but the Northeastern corner
Area 2: Remainder

SIERRA COUNTY:

Area 1: Western part
Area 2: Remainder

SISKIYOU COUNTY:

Area 1: Central part
Area 2: Remainder

SONOMA COUNTY:

Area 1: All but the Northwestern corner
Area 2: Remainder

TEHAMA COUNTY:

Area 1: All but the Western border with Mendocino & Trinity
Counties
Area 2: Remainder

TRINITY COUNTY:

Area 1: East Central part and the Northeastern border with
Shasta County
Area 2: Remainder

TUOLUMNE COUNTY:

Area 1: Except Eastern part
Area 2: Eastern part

"AREA 1" WAGE RATES ARE LISTED BELOW

"AREA 2" RECEIVES AN ADDITIONAL \$2.00 PER HOUR ABOVE AREA 1 RATES.

SEE AREA DEFINITIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment		
(AREA 1:)		
GROUP 1.....	\$ 37.77	23.00
GROUP 2.....	\$ 36.24	23.00
GROUP 3.....	\$ 34.76	23.00
GROUP 4.....	\$ 33.38	23.00
GROUP 5.....	\$ 32.11	23.00
GROUP 6.....	\$ 30.79	23.00
GROUP 7.....	\$ 29.65	23.00
GROUP 8.....	\$ 28.51	23.00
GROUP 8-A.....	\$ 28.30	23.00
OPERATOR: Power Equipment		
(Cranes and Attachments -		
AREA 1:)		
GROUP 1		
Cranes.....	\$ 38.65	23.00
Oiler.....	\$ 29.39	23.00
Truck crane oiler.....	\$ 31.68	23.00
GROUP 2		
Cranes.....	\$ 36.89	23.00
Oiler.....	\$ 29.18	23.00
Truck crane oiler.....	\$ 31.42	23.00
GROUP 3		
Cranes.....	\$ 35.14	23.00
Hydraulic.....	\$ 30.79	23.00
Oiler.....	\$ 28.90	23.00
Truck Crane Oiler.....	\$ 31.18	23.00
OPERATOR: Power Equipment		
(Piledriving - AREA 1:)		
GROUP 1		
Lifting devices.....	\$ 38.99	23.00
Oiler.....	\$ 29.73	23.00
Truck crane oiler.....	\$ 32.01	23.00
GROUP 2		
Lifting devices.....	\$ 37.17	23.00
Oiler.....	\$ 29.46	23.00
Truck Crane Oiler.....	\$ 31.76	23.00
GROUP 3		
Lifting devices.....	\$ 35.49	23.00
Oiler.....	\$ 29.24	23.00
Truck Crane Oiler.....	\$ 31.47	23.00
GROUP 4.....	\$ 33.72	23.00
GROUP 5.....	\$ 31.08	23.00
GROUP 6.....	\$ 28.85	23.00
OPERATOR: Power Equipment		
(Steel Erection - AREA 1:)		
GROUP 1		
Cranes.....	\$ 39.62	23.00

Oiler.....	\$ 30.07	23.00
Truck Crane Oiler.....	\$ 32.30	23.00
GROUP 2		
Cranes.....	\$ 37.85	23.00
Oiler.....	\$ 29.80	23.00
Truck Crane Oiler.....	\$ 32.08	23.00
GROUP 3		
Cranes.....	\$ 36.37	23.00
Hydraulic.....	\$ 31.42	23.00
Oiler.....	\$ 29.58	23.00
Truck Crane Oiler.....	\$ 31.81	23.00
GROUP 4.....	\$ 34.35	23.00
GROUP 5.....	\$ 33.05	23.00

OPERATOR: Power Equipment
(Tunnel and Underground Work
- AREA 1:)

SHAFTS, STOPES, RAISES:

GROUP 1.....	\$ 33.87	23.00
GROUP 1-A.....	\$ 36.34	23.00
GROUP 2.....	\$ 32.61	23.00
GROUP 3.....	\$ 31.28	23.00
GROUP 4.....	\$ 30.14	23.00
GROUP 5.....	\$ 29.00	23.00

UNDERGROUND:

GROUP 1.....	\$ 33.77	23.00
GROUP 1-A.....	\$ 36.34	23.00
GROUP 2.....	\$ 32.51	23.00
GROUP 3.....	\$ 31.18	23.00
GROUP 4.....	\$ 30.04	23.00
GROUP 5.....	\$ 28.90	23.00

FOOTNOTE: Work suspended by ropes or cables, or work on a Yo-Yo Cat: \$.60 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Operator of helicopter (when used in erection work); Hydraulic excavator, 7 cu. yds. and over; Power shovels, over 7 cu. yds.

GROUP 2: Highline cableway; Hydraulic excavator, 3-1/2 cu. yds. up to 7 cu. yds.; Licensed construction work boat operator, on site; Power blade operator (finish); Power shovels, over 1 cu. yd. up to and including 7 cu. yds. m.r.c.

GROUP 3: Asphalt milling machine; Cable backhoe; Combination backhoe and loader over 3/4 cu. yds.; Continuous flight tie back machine assistant to engineer or mechanic; Crane mounted continuous flight tie back machine, tonnage to apply; Crane mounted drill attachment, tonnage to apply; Dozer, slope brd; Gradall; Hydraulic excavator, up to 3 1/2 cu. yds.; Loader 4 cu. yds. and over; Long reach excavator; Multiple engine scraper (when used as push pull); Power shovels, up to and including 1 cu. yd.; Pre-stress wire wrapping machine; Side boom cat, 572 or larger; Track loader 4 cu. yds. and over; Wheel excavator (up to and including 750 cu. yds. per hour)

GROUP 4: Asphalt plant engineer/box person; Chicago boom; Combination backhoe and loader up to and including 3/4 cu. yd.; Concrete batch plant (wet or dry); Dozer and/or push cat; Pull- type elevating loader; Gradesetter, grade checker (GPS, mechanical or otherwise); Grooving and grinding machine; Heading shield operator; Heavy-duty drilling equipment, Hughes, LDH, Watson 3000 or similar; Heavy-duty repairperson and/or welder; Lime spreader; Loader under 4 cu. yds.; Lubrication and service engineer (mobile and grease rack); Mechanical finishers or spreader machine (asphalt, Barber-Greene and similar); Miller Formless M-9000 slope paver or similar; Portable crushing and screening plants; Power blade support; Roller operator, asphalt; Rubber-tired scraper, self-loading (paddle-wheels, etc.); Rubber- tired earthmoving equipment (scrapers); Slip form paver (concrete); Small tractor with drag; Soil stabilizer (P & H or equal); Spider plow and spider puller; Tubex pile rig; Unlicensed constuction work boat operator, on site; Timber skidder; Track loader up to 4 yds.; Tractor-drawn scraper; Tractor, compressor drill combination; Welder; Woods-Mixer (and other similar Pugmill equipment)

GROUP 5: Cast-in-place pipe laying machine; Combination slusher and motor operator; Concrete conveyor or concrete pump, truck or equipment mounted; Concrete conveyor, building site; Concrete pump or pumpcrete gun; Drilling equipment, Watson 2000, Texoma 700 or similar; Drilling and boring machinery, horizontal (not to apply to waterliners, wagon drills or jackhammers); Concrete mixer/all; Person and/or material hoist; Mechanical finishers (concrete) (Clary, Johnson, Bidwell Bridge Deck or similar types); Mechanical burm, curb and/or curb and gutter machine, concrete or asphalt); Mine or shaft hoist; Portable crusher; Power jumbo operator (setting slip-forms, etc., in tunnels); Screed (automatic or manual); Self-propelled compactor with dozer; Tractor with boom D6 or smaller; Trenching machine, maximum digging capacity over 5 ft. depth; Vermeer T-600B rock cutter or similar

GROUP 6: Armor-Coater (or similar); Ballast jack tamper; Boom- type backfilling machine; Assistant plant engineer; Bridge and/or gantry crane; Chemical grouting machine, truck-mounted; Chip spreading machine operator; Concrete saw (self-propelled unit on streets, highways, airports and canals); Deck engineer; Drilling equipment Texoma 600, Hughes 200 Series or similar up to and including 30 ft. m.r.c.; Drill doctor; Helicopter radio operator; Hydro-hammer or similar; Line master; Skidsteer loader, Bobcat larger than 743 series or similar (with attachments); Locomotive; Lull hi-lift or similar; Oiler, truck mounted equipment; Pavement breaker, truck-mounted, with compressor combination; Paving fabric installation and/or laying machine; Pipe bending machine (pipelines only); Pipe wrapping machine (tractor propelled and supported); Screed (except asphaltic concrete paving); Self- propelled pipeline wrapping machine; Soils & materials tester; Tractor; Self-loading chipper; Concrete barrier moving machine

GROUP 7: Ballast regulator; Boom truck or dual-purpose A-frame truck, non-rotating - under 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) - under 15 tons; Cary lift or similar; Combination slurry mixer and/or cleaner; Drilling equipment, 20 ft. and under m.r.c.; Firetender (hot plant); Grouting machine operator; Highline cableway signalperson; Stationary belt loader (Kolman or similar); Lift slab machine (Vagtborg and similar types); Maginnes internal full slab vibrator; Material hoist (1 drum); Mechanical trench shield; Pavement breaker with or without compressor combination); Pipe cleaning machine (tractor propelled and supported); Post driver; Roller (except asphalt); Chip Seal; Self-propelled automatically applied concrete curing machine (on streets, highways, airports and canals); Self-propelled compactor (without dozer); Signalperson; Slip-form pumps (lifting device for concrete forms); Tie spacer; Tower mobile; Trenching machine, maximum digging capacity up to and including 5 ft. depth; Truck- type loader

GROUP 8: Bit sharpener; Boiler tender; Box operator; Brakeperson; Combination mixer and compressor (shotcrete/gunite); Compressor operator; Deckhand; Fire tender; Forklift (under 20 ft.); Generator; Gunite/shotcrete equipment operator; Hydraulic monitor; Ken seal machine (or similar); Mixermobile; Oiler; Pump operator; Refrigeration plant; Reservoir-debris tug (self-propelled floating); Ross Carrier (construction site); Rotomist operator; Self-propelled tape machine; Shuttlecar; Self-propelled power sweeper operator (includes vacuum sweeper); Slusher operator; Surface heater; Switchperson; Tar pot firetender; Tugger hoist, single drum; Vacuum cooling plant; Welding machine (powered other than by electricity)

GROUP 8-A: Elevator operator; Skidsteer loader-Bobcat 743 series or smaller, and similar (without attachments); Mini excavator under 25 H.P. (backhoe-trencher); Tub grinder wood chipper

ALL CRANES AND ATTACHMENTS

GROUP 1: Clamshell and dragline over 7 cu. yds.; Crane, over 100 tons; Derrick, over 100 tons; Derrick barge pedestal-mounted, over 100 tons; Self-propelled boom-type lifting device, over 100 tons

GROUP 2: Clamshell and dragline over 1 cu. yd. up to and including 7 cu. yds.; Crane, over 45 tons up to and including 100 tons; Derrick barge, 100 tons and under; Self-propelled boom-type lifting device, over 45 tons; Tower crane

GROUP 3: Clamshell and dragline up to and including 1 cu. yd.; Cranes 45 tons and under; Self-propelled boom-type lifting device 45 tons and under; Boom Truck or dual

purpose A-frame truck, non-rotating over 15 tons;
Truck-mounted rotating telescopic boom type lifting device,
Manitex or similar (boom truck) over 15 tons;

PILEDRIVERS

GROUP 1: Derrick barge pedestal mounted over 100 tons;
Clamshell over 7 cu. yds.; Self-propelled boom-type lifting
device over 100 tons; Truck crane or crawler, land or barge
mounted over 100 tons

GROUP 2: Derrick barge pedestal mounted 45 tons to and
including 100 tons; Clamshell up to and including 7 cu.
yds.; Self-propelled boom-type lifting device over 45 tons;
Truck crane or crawler, land or barge mounted, over 45 tons
up to and including 100 tons; Fundex F-12 hydraulic pile rig

GROUP 3: Derrick barge pedestal mounted under 45 tons; Self-
propelled boom-type lifting device 45 tons and under;
Skid/scow piledriver, any tonnage; Truck crane or crawler,
land or barge mounted 45 tons and under

GROUP 4: Assistant operator in lieu of assistant to engineer;
Forklift, 10 tons and over; Heavy-duty repairperson/welder

GROUP 5: Deck engineer

GROUP 6: Deckhand; Fire tender

STEEL ERECTORS

GROUP 1: Crane over 100 tons; Derrick over 100 tons; Self-
propelled boom-type lifting device over 100 tons

GROUP 2: Crane over 45 tons to 100 tons; Derrick under 100
tons; Self-propelled boom-type lifting device over 45 tons
to 100 tons; Tower crane

GROUP 3: Crane, 45 tons and under; Self-propelled boom-type
lifting device, 45 tons and under

GROUP 4: Chicago boom; Forklift, 10 tons and over; Heavy-duty
repair person/welder

GROUP 5: Boom cat

TUNNEL AND UNDERGROUND WORK

GROUP 1-A: Tunnel bore machine operator, 20' diameter or more

GROUP 1: Heading shield operator; Heavy-duty repairperson;

Mucking machine (rubber tired, rail or track type); Raised bore operator (tunnels); Tunnel mole bore operator

GROUP 2: Combination slusher and motor operator; Concrete pump or pumpcrete gun; Power jumbo operator

GROUP 3: Drill doctor; Mine or shaft hoist

GROUP 4: Combination slurry mixer cleaner; Grouting Machine operator; Motorman

GROUP 5: Bit Sharpener; Brakeman; Combination mixer and compressor (gunite); Compressor operator; Oiler; Pump operator; Slusher operator

AREA DESCRIPTIONS:

POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS, TUNNEL AND UNDERGROUND [These areas do not apply to Piledrivers and Steel Erectors]

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS, SUTTER, YOLO, AND YUBA COUNTIES

AREA 2 - MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

ALPINE COUNTY:

Area 1: Northernmost part
Area 2: Remainder

CALAVERAS COUNTY:

Area 1: Except Eastern part
Area 2: Eastern part

COLUSA COUNTY:

Area 1: Eastern part
Area 2: Remainder

DEL NORTE COUNTY:

Area 1: Extreme Southwestern corner
Area 2: Remainder

ELDORADO COUNTY:

Area 1: North Central part
Area 2: Remainder

FRESNO COUNTY

Area 1: Except Eastern part
Area 2: Eastern part

GLENN COUNTY:

Area 1: Eastern part
Area 2: Remainder

HUMBOLDT COUNTY:

Area 1: Except Eastern and Southwestern parts

Area 2: Remainder

LAKE COUNTY:

Area 1: Southern part

Area 2: Remainder

LASSEN COUNTY:

Area 1: Western part along the Southern portion of border
with Shasta County

Area 2: Remainder

MADERA COUNTY

Area 1: Remainder

Area 2: Eastern part

MARIPOSA COUNTY

Area 1: Remainder

Area 2: Eastern part

MENDOCINO COUNTY:

Area 1: Central and Southeastern parts

Area 2: Remainder

MONTEREY COUNTY

Area 1: Remainder

Area 2: Southwestern part

NEVADA COUNTY:

Area 1: All but the Northern portion along the border of
Sierra County

Area 2: Remainder

PLACER COUNTY:

Area 1: All but the Central portion

Area 2: Remainder

PLUMAS COUNTY:

Area 1: Western portion

Area 2: Remainder

SHASTA COUNTY:

Area 1: All but the Northeastern corner

Area 2: Remainder

SIERRA COUNTY:

Area 1: Western part

Area 2: Remainder

SISKIYOU COUNTY:

Area 1: Central part

Area 2: Remainder

SONOMA COUNTY:

Area 1: All but the Northwestern corner

Area 2: Reaminder

TEHAMA COUNTY:

Area 1: All but the Western border with Mendocino & Trinity Counties
Area 2: Remainder

TRINITY COUNTY:

Area 1: East Central part and the Northeast border with Shasta County
Area 2: Remainder

TULARE COUNTY:

Area 1: Remainder
Area 2: Eastern part

TUOLUMNE COUNTY:

Area 1: Remainder
Area 2: Eastern Part

ENGI0003-019 06/29/2009

SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment (LANDSCAPE WORK ONLY)		
GROUP 1		
AREA 1.....	\$ 28.64	20.53
AREA 2.....	\$ 30.64	20.53
GROUP 2		
AREA 1.....	\$ 25.04	20.53
AREA 2.....	\$ 27.04	20.53
GROUP 3		
AREA 1.....	\$ 20.43	20.53
AREA 2.....	\$ 22.43	20.53

GROUP DESCRIPTIONS:

GROUP 1: Landscape Finish Grade Operator: All finish grade work regardless of equipment used, and all equipment with a rating more than 65 HP.

GROUP 2: Landscape Operator up to 65 HP: All equipment with a manufacturer's rating of 65 HP or less except equipment covered by Group 1 or Group 3. The following equipment shall be included except when used for finish work as long as manufacturer's rating is 65 HP or less: A-Frame and Winch Truck, Backhoe, Forklift, Hydragraphic Seeder Machine, Roller, Rubber-Tired and Track Earthmoving Equipment, Skiploader, Straw Blowers, and Trencher 31 HP up to 65 HP.

GROUP 3: Landscae Utility Operator: Small Rubber-Tired Tractor, Trencher Under 31 HP.

AREA DESCRIPTIONS:

AREA 1: ALAMEDA, BUTTE, CONTRA COSTA, KINGS, MARIN, MERCED, NAPA, SACRAMENTO, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN,

SAN MATEO, SANTA CLARA, SANTA CRUZ, SOLANO, STANISLAUS,
SUTTER, YOLO, AND YUBA COUNTIES

AREA 2 - MODOC COUNTY

THE REMAINING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS
NOTED BELOW:

ALPINE COUNTY:

Area 1: Northernmost part

Area 2: Remainder

CALAVERAS COUNTY:

Area 1: Except Eastern part

Area 2: Eastern part

COLUSA COUNTY:

Area 1: Eastern part

Area 2: Remainder

DEL NORTE COUNTY:

Area 1: Extreme Southwestern corner

Area 2: Remainder

ELDORADO COUNTY:

Area 1: North Central part

Area 2: Remainder

FRESNO COUNTY

Area 1: Except Eastern part

Area 2: Eastern part

GLENN COUNTY:

Area 1: Eastern part

Area 2: Remainder

HUMBOLDT COUNTY:

Area 1: Except Eastern and Southwestern parts

Area 2: Remainder

LAKE COUNTY:

Area 1: Southern part

Area 2: Remainder

LASSEN COUNTY:

Area 1: Western part along the Southern portion of border
with Shasta County

Area 2: Remainder

MADERA COUNTY

Area 1: Remainder

Area 2: Eastern part

MARIPOSA COUNTY

Area 1: Remainder

Area 2: Eastern part

MENDOCINO COUNTY:

Area 1: Central and Southeastern parts

Area 2: Remainder

MONTEREY COUNTY

Area 1: Remainder

Area 2: Southwestern part

NEVADA COUNTY:

Area 1: All but the Northern portion along the border of
Sierra County

Area 2: Remainder

PLACER COUNTY:

Area 1: All but the Central portion

Area 2: Remainder

PLUMAS COUNTY:

Area 1: Western portion

Area 2: Remainder

SHASTA COUNTY:

Area 1: All but the Northeastern corner

Area 2: Remainder

SIERRA COUNTY:

Area 1: Western part

Area 2: Remainder

SISKIYOU COUNTY:

Area 1: Central part

Area 2: Remainder

SONOMA COUNTY:

Area 1: All but the Northwestern corner

Area 2: Reaminder

TEHAMA COUNTY:

Area 1: All but the Western border with mendocino & Trinity
Counties

Area 2: Remainder

TRINITY COUNTY:

Area 1: East Central part and the Northeaster border with
Shasta County

Area 2: Remainder

TULARE COUNTY;

Area 1: Remainder

Area 2: Eastern part

TUOLUMNE COUNTY:

Area 1: Remainder

Area 2: Eastern Part

IRON0002-004 07/01/2010

Rates Fringes

Ironworkers:

Fence Erector.....\$ 26.58 15.26

Ornamental, Reinforcing
and Structural.....\$ 33.00 23.73

PREMIUM PAY:

\$6.00 additional per hour at the following locations:

China Lake Naval Test Station, Chocolate Mountains Naval Reserve-Niland, Edwards AFB, Fort Irwin Military Station, Fort Irwin Training Center-Goldstone, San Clemente Island, San Nicholas Island, Susanville Federal Prison, 29 Palms - Marine Corps, U.S. Marine Base - Barstow, U.S. Naval Air Facility - Sealey, Vandenberg AFB

\$4.00 additional per hour at the following locations:

Army Defense Language Institute - Monterey, Fallon Air Base, Naval Post Graduate School - Monterey, Yermo Marine Corps Logistics Center

\$2.00 additional per hour at the following locations:

Port Hueneme, Port Mugu, U.S. Coast Guard Station - Two Rock

LABO0067-002 12/01/2008

AREA "A" - ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES

AREA "B" - ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, DEL NORTE, EL DORADO, FRESNO, GLENN, HUMBOLDT, KINGS, LAKE, LASSEN, MADERA, MARIPOSA, MENDOCINO, MERCED, MODOC, MONTEREY, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, STANISLAUS, SUTTER, TEHAMA, TRINITY, TULARE, TUOLUMNE, YOLO AND YUBA COUNTIES

	Rates	Fringes
Asbestos Removal Laborer		
Areas A & B.....	\$ 18.08	6.60
LABORER (Lead Removal)		
Area A.....	\$ 34.15	6.11
Area B.....	\$ 33.15	6.11

ASBESTOS REMOVAL-SCOPE OF WORK: Site mobilization; initial site clean-up; site preparation; removal of asbestos-containing materials from walls and ceilings; or from pipes, boilers and mechanical systems only if they are being scrapped; encapsulation, enclosure and disposal of asbestos-containing materials by hand or with equipment or machinery; scaffolding; fabrication of temporary wooden barriers; and assembly of decontamination stations.

LABO0067-003 07/01/2009

AREA A: ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN MATEO & SANTA CLARA

Green Valley Road at Tennessee Creek - Bridge Replacement Project
Contract No. PW 09-30407 / CIP No. 77109
January 11, 2011

County of El Dorado, DOT
Appendix D - Federal Wage Rates
Page AD-23

AREA B: ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, DEL NORTE, EL DORADO, FRESNO, GLENN, HUMBOLDT, KINGS, LAKE, LASSEN, MADERA, MARIPOSA, MENOCINO, MERCED, MODOC, MONTEREY, NAPA, NEVADA, PLACER, PLUMAS, SANCRCMENTO, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, SIERRA, SHASTA, SISKIYOU, SOLANO, SONOMA, STANISLAUS, TEHAMA, TRINITY, TULARE, TUOLUMNE, YOLO & YUBA COUNTIES

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person		
Area A.....	\$ 26.89	14.93
Area B.....	\$ 25.89	14.93
Traffic Control Person I		
Area A.....	\$ 27.19	14.93
Area B.....	\$ 26.19	14.93
Traffic Control Person II		
Area A.....	\$ 24.69	14.93
Area B.....	\$ 23.69	14.93

TRAFFIC CONTROL PERSON I: Layout of traffic control, crash cushions, construction area and roadside signage.

TRAFFIC CONTROL PERSON II: Installation and removal of temporary/permanent signs, markers, delineators and crash cushions.

LABO0067-006 06/28/2010

AREA "A" - ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES

AREA "B" - ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, EL DORADO, FRESNO, GLENN, KINGS, LASSEN, MADERA, MARIPOSA, MERCED, MODOC, MONTEREY, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, SHASTA, SIERRA, SISKIYOU, SOLANO, SONOMA, STANISLAUS, SUTTER, TEHAMA, TRINITY, TULARE, TUOLUMNE, YOLO AND YUBA COUNTIES

	Rates	Fringes
Laborers: (CONSTRUCTION CRAFT LABORERS - AREA A:)		
Construction Specialist		
Group.....	\$ 27.84	15.82
GROUP 1.....	\$ 27.14	15.82
GROUP 1-a.....	\$ 27.36	15.82
GROUP 1-c.....	\$ 27.19	15.82
GROUP 1-e.....	\$ 27.69	15.82
GROUP 1-f.....	\$ 27.72	15.82
GROUP 1-g (Contra Costa County).....	\$ 27.34	15.82
GROUP 2.....	\$ 26.99	15.82
GROUP 3.....	\$ 26.89	15.82
GROUP 4.....	\$ 20.58	15.82

See groups 1-b and 1-d under laborer classifications.

Laborers: (CONSTRUCTION CRAFT

LABORERS - AREA B:)

Construction Specialist

Group.....	\$ 26.84	15.82
GROUP 1.....	\$ 26.14	15.82
GROUP 1-a.....	\$ 26.36	15.82
GROUP 1-c.....	\$ 26.19	15.82
GROUP 1-e.....	\$ 26.69	15.82
GROUP 1-f.....	\$ 26.72	15.82
GROUP 2.....	\$ 25.99	15.82
GROUP 3.....	\$ 25.89	15.82
GROUP 4.....	\$ 19.58	15.82

See groups 1-b and 1-d under laborer classifications.

Laborers: (GUNITE - AREA A:)

GROUP 1.....	\$ 28.10	15.82
GROUP 2.....	\$ 27.60	15.82
GROUP 3.....	\$ 27.60	15.82
GROUP 4.....	\$ 27.60	15.82

Laborers: (GUNITE - AREA B:)

GROUP 1.....	\$ 27.10	15.82
GROUP 2.....	\$ 26.60	15.82
GROUP 3.....	\$ 26.01	15.82
GROUP 4.....	\$ 25.89	15.82

Laborers: (WRECKING - AREA A:)

GROUP 1.....	\$ 27.14	15.82
GROUP 2.....	\$ 26.99	15.82

Laborers: (WRECKING - AREA B:)

GROUP 1.....	\$ 26.14	15.82
GROUP 2.....	\$ 25.99	15.82

Landscape Laborer (GARDENERS,
HORTICULTURAL & LANDSCAPE

LABORERS - AREA A:)

(1) New Construction.....	\$ 26.89	15.82
(2) Establishment Warranty Period.....	\$ 20.58	15.82

Landscape Laborer (GARDENERS,
HORTICULTURAL & LANDSCAPE

LABORERS - AREA B:)

(1) New Construction.....	\$ 25.89	15.82
(2) Establishment Warranty Period.....	\$ 19.58	15.82

FOOTNOTES:

Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive \$0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in-place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill;

Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker including Leade Abatement; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucket; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive \$4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shall receive \$5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All

employees performing work covered herein shall receive \$.25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 1-g, CONTRA COSTA COUNTY: Pipelayer (including grade checking in connection with pipelaying); Caulker; Bander; Pipewrapper; Conduit layer; Plastic pipe layer; Pressure pipe tester; No joint pipe and stripping of same, including repair of voids; Precast manhole setters, cast in place manhole form setters

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches

GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)

GROUP 4: Final clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or

temporary jobsite yard.

The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS

- GROUP 1: Structural Nozzleman
- GROUP 2: Nozzleman, Gunman, Potman, Groundman
- GROUP 3: Reboundman
- GROUP 4: Gunitite laborer

WRECKING WORK LABORER CLASSIFICATIONS

- GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)
- GROUP 2: Semi-skilled wrecker (salvaging of other building materials)

LABO0067-010 06/29/2009

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1.....	\$ 33.35	14.93
GROUP 2.....	\$ 33.12	14.93
GROUP 3.....	\$ 32.87	14.93
GROUP 4.....	\$ 32.42	14.93
GROUP 5.....	\$ 31.88	14.93
Shotcrete Specialist.....	\$ 33.87	14.93

TUNNEL AND SHAFT CLASSIFICATIONS

- GROUP 1: Diamond driller; Groundmen; Gunitite and shotcrete nozzlelemen
- GROUP 2: Rodmen; Shaft work & raise (below actual or excavated ground level)
- GROUP 3: Bit grinder; Blaster, driller, powdermen, heading; Cherry pickermen - where car is lifted; Concrete finisher in tunnel; Concrete screedman; Grout pumpman and potman; Gunitite & shotcrete gunman & potman; Headermen; High pressure nozzleman; Miner - tunnel, including top and bottom man on shaft and raise work; Nipper; Nozzleman on slick line; Sandblaster - potman, Robotic Shotcrete Placer, Segment Erector, Tunnel Muck Hauler, Steel Form raiser and setter; Timberman, retimberman (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powderman - primer house

GROUP 4: Vibrator operator, pavement breaker; Bull gang - muckers, trackmen; Concrete crew - includes rodding and spreading, Dumpmen (any method)

GROUP 5: Grout crew; Reboundman; Swamper/ Brakeman

LABO0073-001 07/01/2009

	Rates	Fringes
Plasterer tender.....	\$ 28.37	14.14

LABO0139-002 07/01/2009

NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
LABORER (Brick)		
Mason Tender-Brick.....	\$ 27.28	14.93

LABO0185-002 07/01/2009

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
LABORER		
Mason Tender-Brick.....	\$ 27.03	14.93

LABO0291-001 07/01/2009

MARIN COUNTY

	Rates	Fringes
LABORER		
Mason Tender-Brick.....	\$ 28.28	14.93

PAIN0016-004 07/01/2010

MARIN, NAPA, SOLANO & SONOMA COUNTIES

	Rates	Fringes
Painters:.....	\$ 34.50	16.87

PREMIUMS:

EXOTIC MATERIALS - \$0.75 additional per hour.

SPRAY WORK: - \$0.50 additional per hour.

INDUSTRIAL PAINTING - \$0.25 additional per hour

[Work on industrial buildings used for the manufacture and processing of goods for sale or service; steel construction (bridges), stacks, towers, tanks, and similar structures]

HIGH WORK:

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over 50 feet - \$2.00 per hour additional
 100 to 180 feet - \$4.00 per hour additional
 Over 180 feet - \$6.00 per hour additional

 PAIN0016-005 07/01/2010

ALPINE, BUTTE, COLUSA, EL DORADO (west of the Sierra Nevada Mountains), GLENN, LASSEN (west of Hwy. 395, excluding Honey Lake); MARIN, MODOC, NAPA, NEVADA (west of the Sierra Nevada Mountains), PLACER (west of the Sierra Nevada Mountains), PLUMAS, SACRAMENTO, SHASTA, SIERRA (west of the Sierra Nevada Mountains), SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
DRYWALL FINISHER/TAPER.....	\$ 42.66	17.26

 PAIN0016-007 09/01/2010

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO (west of the Sierra Nevada Mountains), GLENN, LASSEN (west of Highway 395, excluding Honey Lake), MODOC, NEVADA (west of the Sierra Nevada Mountains), PLACER (west of the Sierra Nevada Mountains), PLUMAS, SACRAMENTO, SHASTA, SIERRA (west of the Sierra Nevada Mountains), SISKIYOU, SUTTER, TEHAMA, TRINITY, YOLO & YUBA COUNTIES

	Rates	Fringes
Painters:.....	\$ 25.78	12.97

SPRAY/SANDBLAST: \$0.50 additional per hour.
 EXOTIC MATERIALS: \$1.00 additional per hour.

HIGH TIME: Over 50 ft above ground or water level \$2.00 additional per hour. 100 to 180 ft above ground or water level \$4.00 additional per hour. Over 180 ft above ground or water level \$6.00 additional per hour.

 PAIN0016-008 07/01/2010

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 40.71	14.88

 PAIN0169-004 07/01/2010

MARIN, NAPA & SONOMA COUNTIES; SOLANO COUNTY (west of a line defined as follows: Hwy. 80 corridor beginning at the City of Fairfield, including Travis Air Force Base and Suisun City; going north of Manakas Corner Rd., continue north on Suisun Valley Rd. to the Napa County line; Hwy. 80 corridor south on Grizzly Island Rd. to the Grizzly Island Management area)

	Rates	Fringes
GLAZIER.....	\$ 42.67	18.00

* PAIN0567-001 07/01/2010

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains); AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
Painters:		
Brush and Roller.....	\$ 24.79	8.01
Spray Painter & Paperhanger.	\$ 25.58	8.01

PREMIUMS:
Special Coatings (Brush), and Sandblasting = \$0.50/hr
Special Coatings (Spray), and Steeplejack = \$1.00/hr
Special Coating Spray Steel = \$1.25/hr
Swing Stage = \$2.00/hr

*A special coating is a coating that requires the mixing of 2 or more products.

PAIN0567-007 07/01/2010

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains); AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 25.93	10.41

PAIN0567-010 07/01/2010

EL DORADO COUNTY (east of the Sierra Nevada Mountains); LASSEN COUNTY (east of Highway 395, beginning at Stacey and including Honey Lake); NEVADA COUNTY (east of the Sierra Nevada Mountains); PLACER COUNTY (east of the Sierra Nevada Mountains); AND SIERRA COUNTY (east of the Sierra Nevada Mountains)

	Rates	Fringes
Drywall		
(1) Taper.....	\$ 26.54	9.74
(2) Steeplejack - Taper, over 40 ft with open space below.....	\$ 28.04	9.79

PAIN0767-004 07/01/2010

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO (Remainder), SUTTER, TEHAMA, TRINITY, YOLO, YUBA

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	Rates	Fringes
GLAZIER.....	\$ 33.53	16.20

PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day.

Employee required to wear a body harness shall receive \$1.50 per hour above the basic hourly rate at any elevation.

PAIN1176-001 07/01/2009

HIGHWAY IMPROVEMENT

	Rates	Fringes
Parking Lot Striping/Highway Marking:		
GROUP 1.....	\$ 29.44	12.51
GROUP 2.....	\$ 24.23	12.51
GROUP 3.....	\$ 24.86	12.51

CLASSIFICATIONS

GROUP 1: Striper: Layout and application of painted traffic stripes and marking; hot thermo plastic; tape, traffic stripes and markings

GROUP 2: Gamecourt & Playground Installer

GROUP 3: Protective Coating, Pavement Sealing

* PAIN1237-001 07/01/2010

ALPINE; COLUSA; EL DORADO (west of the Sierra Nevada Mountains); GLENN; LASSEN (west of Highway 395, beginning at Stacey and including Honey Lake); MODOC; NEVADA (west of the Sierra Nevada Mountains); PLACER (west of the Sierra Nevada Mountains); PLUMAS; SACRAMENTO; SHASTA; SIERRA (west of the Sierra Nevada Mountains); SISKIYOU; SUTTER; TEHAMA; TRINITY; YOLO AND YUBA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 30.54	13.45

PLAS0300-003 07/01/2009

	Rates	Fringes
PLASTERER		
AREA 295: Alpine, Amador, Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Solano,		

Sutter, Tehema, Trinity, Yolo & Yuba Counties.....	\$ 32.82	15.10
AREA 355: Marin, Napa & Sonoma Counties.....	\$ 32.82	15.30

PLAS0300-005 06/28/2010

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER....	\$ 28.65	18.56

PLUM0038-002 07/01/2010

MARIN AND SONOMA COUNTIES

	Rates	Fringes
PLUMBER (Plumber, Steamfitter, Refrigeration Fitter)		
(1) Work on wooden frame structures 5 stories or less excluding high-rise buildings and commercial work such as hospitals, prisons, hotels, schools, casinos, wastewater treatment plants, and research facilities as well as refrigeration pipefitting, service and repair work - MARKET RECOVERY RATE.....	\$ 46.96	34.83
(2) All other work - NEW CONSTRUCTION RATE.....	\$ 55.25	37.04

PLUM0038-006 07/01/2010

MARIN & SONOMA COUNTIES

	Rates	Fringes
Landscape/Irrigation Fitter (Underground/Utility Fitter).....	\$ 46.96	26.35

PLUM0228-001 07/01/2010

BUTTE, COLUSA, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA,
SISKIYOU, SUTTER, TEHAMA, TRINITY & YUBA COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 35.70	20.68

PLUM0343-001 07/01/2010

NAPA AND SOLANO COUNTIES

	Rates	Fringes
Green Valley Road at Tennessee Creek -- Bridge Replacement Project Contract No. PW 09-30407 / CIP No. 77109 January 11, 2011		

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10-0299.2B.425

PLUMBER/PIPEFITTER		
Light Commercial.....	\$ 30.60	17.34
All Other Work.....	\$ 45.25	22.20

DEFINITION OF LIGHT COMMERCIAL:

Work shall include strip shopping centers, office buildings, schools and other commercial structures which the total plumbing bid does not exceed Two Hundred and Fifty Thousand (\$250,000) and the total heating and cooling does not exceed Two Hundred Fifty Thousand (\$250,000); or Any projects bid in phases shall not qualify unless the total project is less than Two Hundred Fifty Thousand (\$250,000) for the plumbing bid; and Two Hundred Fifty Thousand (\$250,000) for the heating and cooling bid. Excluded are hospitals, jails, institutions and industrial projects, regardless size of the project

FOOTNOTES: While fitting galvanized material: \$.75 per hour additional. Work from trusses, temporary staging, unguarded structures 35' from the ground or water: \$.75 per hour additional. Work from swinging scaffolds, boatswains chairs or similar devices: \$.75 per hour additional.

 PLUM0350-001 08/01/2010

EL DORADO COUNTY (Lake Tahoe area only); NEVADA COUNTY (Lake Tahoe area only); AND PLACER COUNTY (Lake Tahoe area only)

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 35.28	9.97

 PLUM0355-001 07/01/2010

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO, SUTTER, TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Underground Utility Worker /Landscape Fitter.....	\$ 28.10	7.20

 PLUM0442-003 07/01/2010

AMADOR (South of San Joaquin River) and ALPINE COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 35.70	21.18

 PLUM0447-001 07/01/2010

AMADOR (north of San Joaquin River), EL DORADO (excluding Lake Tahoe area), NEVADA (excluding Lake Tahoe area); PLACER (excluding Lake Tahoe area), SACRAMENTO AND YOLO COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER		
Journeyman.....	\$ 39.82	18.57
Light Commercial Work.....	\$ 29.78	9.57

 ROOF0081-006 08/01/2009

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
Roofer.....	\$ 30.95	12.65

 ROOF0081-007 08/01/2009

ALPINE, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA,
 PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER,
 TEHAMA, TRINITY, YOLO, AND YUBA COUNTIES

	Rates	Fringes
Roofer.....	\$ 26.77	13.93

 SFCA0483-003 08/02/2010

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....	\$ 52.09	20.55

 SFCA0669-003 04/01/2010

ALPINE, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA,
 PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER,
 TEHAMA, TRINITY, YOLO AND YUBA COUNTIES

	Rates	Fringes
SPRINKLER FITTER.....	\$ 33.35	17.60

 SHEE0104-006 07/01/2009

MARIN, NAPA, SOLANO SONOMA & TRINITY COUNTIES

	Rates	Fringes
Sheet Metal Worker		
Mechanical Contracts		
\$200,000 or less.....	\$ 43.32	26.40
All other work.....	\$ 47.73	26.67

 SHEE0104-014 07/01/2009

MARIN, NAPA, SOLANO, SONOMA AND TRINITY COUNTIES

	Rates	Fringes
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SHEET METAL WORKER (Metal
Decking and Siding only).....\$ 33.43 24.31

SHEE0162-006 07/01/2010

AMADOR, COLUSA, EL DORADO, NEVADA, PLACER, SACRAMENTO, SUTTER,
YOLO AND YUBA COUNTIES

	Rates	Fringes
SHEET METAL WORKER.....	\$ 33.05	26.36

SHEE0162-007 07/01/2010

ALPINE COUNTY

	Rates	Fringes
SHEET METAL WORKER.....	\$ 28.91	23.56

SHEE0162-008 07/01/2010

BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER,
PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA,
YOLO AND YUBA COUNTIES

	Rates	Fringes
Sheet Metal Worker (Metal decking and siding only).....	\$ 33.05	26.36

SHEE0162-014 07/01/2009

BUTTE, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA, SISKIYOU
AND TEHAMA COUNTIES

	Rates	Fringes
SHEET METAL WORKER Mechanical Jobs \$200,000 & under.....	\$ 27.90	20.89
Mechanical Jobs over \$200,000.....	\$ 36.31	21.61

TEAM0094-001 07/01/2009

	Rates	Fringes
Truck drivers:		
GROUP 1.....	\$ 27.13	18.99
GROUP 2.....	\$ 27.43	18.99
GROUP 3.....	\$ 27.73	18.99
GROUP 4.....	\$ 28.08	18.99
GROUP 5.....	\$ 28.43	18.99

FOOTNOTES:

Articulated dump truck; Bulk cement spreader (with or without
auger); Dumpcrete truck; Skid truck (debris box); Dry

pre-batch concrete mix trucks; Dumpster or similar type;
Slurry truck: Use dump truck yardage rate.
Heater planer; Asphalt burner; Scarifier burner; Industrial
lift truck (mechanical tailgate); Utility and clean-up
truck: Use appropriate rate for the power unit or the
equipment utilized.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Dump trucks, under 6 yds.; Single unit flat rack (2-
axle unit); Nipper truck (when flat rack truck is used
appropriate flat rack shall apply); Concrete pump truck
(when flat rack truck is used appropriate flat rack shall
apply); Concrete pump machine; Fork lift and lift jitneys;
Fuel and/or grease truck driver or fuel person; Snow buggy;
Steam cleaning; Bus or personhaul driver; Escort or pilot
car driver; Pickup truck; Teamster oiler/greaser and/or
serviceperson; Hook tender (including loading and
unloading); Team driver; Tool room attendant (refineries)

GROUP 2: Dump trucks, 6 yds. and under 8 yds.; Transit
mixers, through 10 yds.; Water trucks, under 7,000 gals.;
Jetting trucks, under 7,000 gals.; Single-unit flat rack
(3-axle unit); Highbed heavy duty transport; Scissor truck;
Rubber-tired muck car (not self-loaded); Rubber-tired truck
jumbo; Winch truck and "A" frame drivers; Combination winch
truck with hoist; Road oil truck or bootperson;
Buggymobile; Ross, Hyster and similar straddle carriers;
Small rubber-tired tractor

GROUP 3: Dump trucks, 8 yds. and including 24 yds.; Transit
mixers, over 10 yds.; Water trucks, 7,000 gals. and over;
Jetting trucks, 7,000 gals. and over; Vacuum trucks under
7500 gals. Trucks towing tilt bed or flat bed pull
trailers; Lowbed heavy duty transport; Heavy duty transport
tiller person; Self-propelled street sweeper with
self-contained refuse bin; Boom truck - hydro-lift or
Swedish type extension or retracting crane; P.B. or similar
type self-loading truck; Tire repairperson; Combination
bootperson and road oiler; Dry distribution truck (A
bootperson when employed on such equipment, shall receive
the rate specified for the classification of road oil
trucks or bootperson); Ammonia nitrate distributor, driver
and mixer; Snow Go and/or plow

GROUP 4: Dump trucks, over 25 yds. and under 65 yds.; Water
pulls - DW 10's, 20's, 21's and other similar equipment
when pulling Aqua/pak or water tank trailers; Helicopter
pilots (when transporting men and materials); Lowbedk Heavy
Duty Transport up to including 7 axles; DW10's, 20's, 21's
and other similar Cat type, Terra Cobra, LeTourneau Pulls,
Tournorocker, Euclid and similar type equipment when
pulling fuel and/or grease tank trailers or other
miscellaneous trailers; Vacuum Trucks 7500 gals and over
and truck repairman

GROUP 5: Dump trucks, 65 yds. and over; Holland hauler; Low
bed Heavy Duty Transport over 7 axles

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

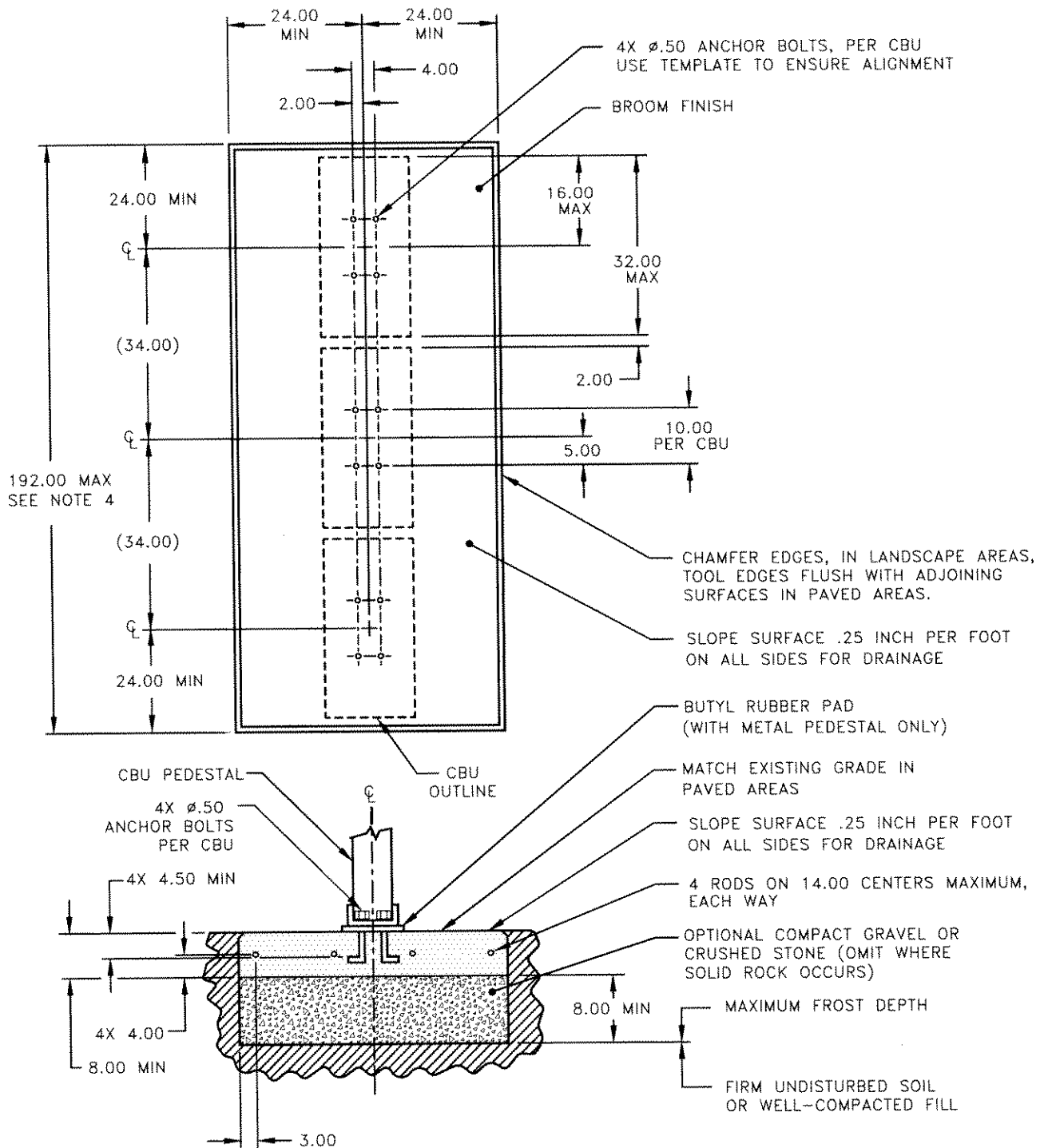
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END OF GENERAL DECISION

APPENDIX E
to the contract documents for
Green Valley Road at Tennessee Creek – Bridge Replacement Project
Contract No. PW 09-30407 / CIP No. 77109

PEACEFUL GARDEN MAILBOX STANDARD DRAWING

Peaceful Garden Mailbox Standard Drawing – Concrete Pad with Multiple Units



NOTES:

1. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 PSI @ 28 DAYS, CONTAIN 4% MIN - 6% MAX AIR ENTRAINMENT AND BE PLACED WITH A 3.50 - 4.50 SLUMP IN ACCORDANCE WITH ACI 301.
2. REINFORCING STEEL RODS SHALL CONFORM TO ASTM A615, GRADE 60.
3. ANCHOR BOLTS SHALL CONFORM TO ASTM A193, GRADE B8M, TYPE 316 STAINLESS STEEL.
4. A 3 CBU CONFIGURATION IS DEPICTED. A 2 OR 4 CBU CONFIGURATION MAY BE USED AS LONG AS THEY ARE ARRANGED IN GROUPS SUCH THAT THE OVERALL DIMENSION OF THE CONCRETE BASE DOES NOT EXCEED 192 INCHES.

APPENDIX F
to the contract documents for
Green Valley Road at Tennessee Creek – Bridge Replacement Project
Contract No. PW 09-30407 / CIP No. 77109

PERMITS

AGREEMENT REGARDING PROPOSED STREAM ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and the County of El Dorado, a political subdivision of the State of California, hereafter called the County, is as follows:

WHEREAS, pursuant to California Fish and Game Code, Section 1602, the County, on November 25, 2009, notified the Department that it intends to substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed of, the following water: Tennessee Creek, in the County of El Dorado, State of California, Section 13, 24, Township 10N, Range 9E, USGS Map Shingle Springs, MDB&M.

WHEREAS, the Department, represented by Gary Hobgood, has determined that such operations may substantially adversely affect existing fish and wildlife resources including: California red-legged frog, Northwestern pond turtle, various life stages of fish, other forms of vertebrate and invertebrate aquatic life, amphibians, reptiles and nesting birds and riparian plant species.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife during the County's work. The County hereby agrees to accept the following recommendations as part of its work:

Project Description: The El Dorado County Department of Transportation intends to replace the Green Valley Road Bridge over Tennessee Creek with a larger, wider concrete bridge to improve roadway safety. The project will replace the 29.5-foot long by 19.0-foot wide, two-lane, reinforced concrete girder bridge. The new bridge will be a pre-stressed slab bridge that is 64-foot long by 52-foot wide, three-lane bridge. Replacement of the bridge is scheduled to begin in 2010.

Stream Zone Defined: All components of a stream, including the channel, bed, banks, and floodplains. The Stream Zone is the land, including vegetation, that bounds a lake or the channel of a stream and that defines the lateral extent of their waters.

1. The notification, together with all supporting documents submitted with the notification, including the Initial Study/Mitigated Negative Declaration for the Green Valley Road Bridge Replacement at Tennessee Creek/N. Shingle Road Intersection Improvements, dated, October 2008, the Green Valley Road Bridge at Tennessee Creek Replacement Project Natural Environment Study and Jurisdictional Delineation Report dated, April 2008 and the construction plans, are hereby incorporated into this agreement to describe the location and features of the proposed project. The County agrees that all work shall be done as described in the notification and supporting documents, incorporating all project modifications, wildlife resource protection features, mitigation measures, and provisions as described in this agreement. Where apparent conflicts exist between the notification and the provisions listed in this agreement, the County shall comply with the provisions listed in this agreement. The County further agrees to notify the Department of any modifications made to the project plans submitted to the Department. At the discretion of the Department, this agreement will be amended to accommodate modifications to the project plans submitted to the Department and/or new project activities. Please see the current fee schedule to determine the appropriate amendment fee.
2. Documents, plans, surveys, notifications, and requests pertaining to this project or required by this agreement may be sent via email to Gary Hobgood at ghobgood@dfg.ca.gov or delivered to the Department of Fish and Game at 1701 Nimbus Road, Suite A, Rancho Cordova, CA

95670. Refer to Notification Number 1600-2009-0224-R2 when submitting documents to the Department.

3. The time period for completing the work within the stream zone of Tennessee Creek shall be restricted to periods of low stream flow and dry weather and shall be confined to the period of April 15 to October 15. Construction activities shall be timed with awareness of precipitation forecasts and likely increases in stream flow. Construction activities within the stream zone shall cease until all reasonable erosion control measures, inside and outside of the stream zone, have been implemented prior to all storm events. No work will occur during wet weather. Wet Weather is defined as when there has been ¼ inch of rain in a 24-hour period. In addition, no work will occur during a dry out period of 24 hours after the above referenced wet weather. Revegetation, restoration and erosion control work is not confined to this time period.
4. If the County finds more time is needed to complete the authorized activity, the County shall submit a written request for a work period time extension to the Department. The work period extension request shall provide the following information: 1) Describe the extent of work already completed; 2) Provide specific detail of the activities that remain to be completed within the stream zone; and 3) Detail the actual time required to complete each of the remaining activities within the stream zone. The work period extension request should consider the effects of increased stream conditions, rain delays, increased erosion control measures, limited access due to saturated soil conditions, and limited growth of erosion control grasses due to cool weather. Photographs of the work completed and the proposed work areas are helpful in assisting the Department in its evaluation. Time extensions are issued at the discretion of the Department. The Department will review the written request to work beyond the established work period. The Department will have ten calendar days to approve the proposed work period extension. The Department reserves the right to require additional measures designed to protect natural resources.
5. This Agreement does not relieve the County or any person acting on behalf of the County, including its officers, employees, representatives, agents or contractors and subcontractors, from complying with other applicable statutes in the Fish and Game Code, including, but not limited to, sections 2050 et seq. (California Endangered Species Act), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5931 (fish passage over/around dam), 5937 (sufficient water for fish), and 5948 (obstruction of stream). The County is responsible for obtaining all required permits and authorizations from local, state and federal agencies. The County shall notify the Department where conflicts exist between the provisions of this agreement and those imposed by other regulatory agencies. Unless otherwise notified, the County shall comply with the provision that offers the greatest protection to water quality, species of special concern and/or critical habitat.
6. If a private contractor is used for this project, the contractor shall sign County's copy of this agreement prior to working within the stream zone. A copy of this agreement and a copy of the original notification, including the project description, as submitted to the Department, must be available upon request at the work site. The contractor or a designated crew supervisor shall be on site the entire time a work crew is working near the stream zone. The supervisor shall be completely familiar with the terms and conditions of this agreement and shall ensure compliance with all terms and conditions. The Department reserves the right to inspect the project site to ensure that there is compliance with the terms/conditions of this Agreement.

7. The County shall notify the Department within two working days of beginning work within the stream zone of Tennessee Creek. Upon completion of the project activities described in this agreement, the work area within the stream zone shall be digitally photographed. Photographs shall be submitted to the Department within two days of completion. Photographs and project commencement notification shall be submitted as instructed in item number 2 above.
8. The County will implement the Revegetation Planting and Erosion Control Specification Plan and the Compensatory Mitigation and Monitoring Plan included in the Natural Environment Study as appendix G and I, respectively, to compensate for the unavoidable loss of vegetation along Tennessee Creek. The plan focuses on replanting or enhancing habitat along Tennessee Creek in the construction area. All native trees within 10 ft of the top of bank of Tennessee Creek will be replaced within the riparian zone at a 3:1 ratio and planting willow poles in the rock slope protection. The revegetation plan calls for the planting of locally native riparian tree and shrub species. To the extent practical, riparian mitigation shall be done along and/or near the project site. The revegetation plan includes: a description and map of the site, the species to be planted; a description of the extent and method of irrigation; specifications for site preparation and installation of plant materials; specifications and schedule for installation, including amount and application method of fertilizers; and specifications for a success criteria and the corrective actions recommended or to be taken when mitigation measures do not meet the proposed success criteria. An annual monitoring report will be submitted to the Department. Work within the stream zone shall not begin until the revegetation plan has been approved by the Department.
9. Work within the flowing or standing water portion of Tennessee Creek is not allowed without written authorization from the Department. If flowing water is present or should reasonably be anticipated, the County must submit detailed water diversion plan to the Department. Dewatering and stream crossing structures may include the use of clean removable materials, such as, sand bags, Port-a-dams, water bladder dams, K-rails, driven sheet metal coffer dams and trestles. Temporary culvert(s) and/or temporary bridge(s) must be sized to handle reasonably anticipated flows from unanticipated storm events. The Department will review the proposed water diversion and/or temporary stream crossing plan(s). The Department will have 10 calendar days to approve the plan(s) or provide the requirements for that approval. If the Department does not respond within 10 days, the plan shall be automatically approved. All water dewatering structures shall be removed from the stream zone by October 15 unless otherwise authorized by the Department.
10. It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by the Fish and Game Code. No trees that contain active nests of birds shall be disturbed until all eggs have hatched and young birds have fledged without prior consultation and approval of a Department representative.
11. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations. Except for the trees specifically identified for removal in the notification, no native trees with a trunk diameter at breast height (DBH) in excess of three (3) inches shall be removed or damaged without prior consultation and approval of a Department representative. Using hand tools (clippers, chain saw, etc.), trees may be trimmed to the extent necessary to gain access to the work sites. All cleared material/vegetation shall be removed out of the riparian/stream zone.

12. Precautions to minimize turbidity/siltation shall be taken into account during project planning and implementation. This may require the placement of silt fencing, coir logs, coir rolls, straw bale dikes, or other siltation barriers so that silt and/or other deleterious materials are not allowed to pass to downstream reaches. Passage of sediment beyond the sediment barrier(s) is prohibited. If any sediment barrier fails to retain sediment, corrective measures shall be taken. The sediment barrier(s) shall be maintained in good operating condition throughout the construction period and the following rainy season. Maintenance includes, but is not limited to, removal of accumulated silt and/or replacement of damaged silt fencing, coir logs, coir rolls, and/or straw bale dikes. The County is responsible for the removal of non-biodegradable silt barriers (such as plastic silt fencing) after the disturbed areas have been stabilized with erosion control vegetation (usually after the first growing season). Upon Department determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation shall be halted until effective Department approved control devices are installed or abatement procedures are initiated.
13. Utilize Best Management Practices (BMPs) to prevent spills and leaks into water bodies. If maintenance or refueling of vehicles or equipment must occur on-site, use a designated area and/or a secondary containment, located away from drainage courses to prevent the runoff of storm water and the runoff of spills. Ensure that all vehicles and equipment are in good working order (no leaks). Place drip pans or absorbent materials under vehicles and equipment when not in use. Ensure that all construction areas have proper spill clean up materials (absorbent pads, sealed containers, booms, etc.) to contain the movement of any spilled substances. Any other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil and/or entering the waters of the state. Any of these materials, placed within or where they may enter a stream or lake by the County or any party working under contract or with the permission of the County, shall be removed immediately. The Department shall be notified immediately by the County of any spills and shall be consulted regarding clean-up procedures.
14. During construction, the contractor shall not dump any litter or construction debris within the stream zone. All construction debris and associated materials shall be removed from the work site upon completion of this project.
15. All exposed/disturbed areas and access points within the stream zone left barren of vegetation as a result of the construction activities shall be restored using locally native grass seeds, locally native grass plugs and/or a mix of quick growing sterile non-native grass with locally native grass seeds. Seeded areas shall be covered with broadcast straw and/or jut netted (monofilament erosion blankets are not authorized).
16. This agreement is not valid and work may not begin until the agreement is signed by a representative of the Department of Fish & Game. Stream alteration work authorized by this agreement expires on December 31, 2014. This agreement shall remain in effect for that time necessary to satisfy all required mitigation and monitoring measures.
17. Requests for Extensions (agreement renewal), Minor Amendments, and Major Amendments must be submitted in writing prior to expiration of the agreement or commencement of work on modified project plans. Extensions and Amendments are issued at the discretion of the Department. Please see the current fee schedule to determine the appropriate fee.

18. The Department may take enforcement action and reserves the right to suspend and/or revoke this agreement if the Department determines that the circumstances warrant. The circumstances that could require these Department actions include, but are not limited to, the following: A) Failure to comply with the terms/conditions of this agreement. B) The information provided by the County in support of the agreement/notification is determined by the Department to be incomplete, or inaccurate. C) When new information becomes available to the Department representative(s) that was not known when preparing the original terms/conditions of this agreement. D) The project as described in the notification, agreement, or amendment has changed, or conditions affecting fish and wildlife resources change.
19. If, in the opinion of the Department, conditions arise or change in such a manner as to be considered deleterious to aquatic life, operations shall cease until corrective measures are taken.
20. It is understood that the Department enters into this agreement for purposes of establishing protective features for fish and wildlife, in the event that a project is implemented. The decision to proceed with the project is the sole responsibility of the County, and is not required by this agreement. It is agreed that all liability and/or incurred costs related to or arising out of the County's project and the fish and wildlife protective conditions of this agreement, remain the sole responsibility of the County. The County agrees to hold harmless and defend the State of California and the Department of Fish and Game against any related claim made by any party or parties for personal injury or other damage.

SIGNATURE PAGE

The County, as designated by the signature on this agreement, shall be responsible for the execution of all elements of this agreement. A copy of this agreement must be provided to contractor and subcontractors and must be in their possession at the work site.


Failure to comply with the provisions of this agreement and with other pertinent Code Sections, including but not limited to Fish and Game Code Sections 5650, 5652 and 5948, may result in prosecution.

Nothing in this agreement authorizes the County to trespass on any land or property, nor does it relieve the County of responsibility for compliance with applicable federal, state, or local laws or ordinances.

This agreement is not valid and work may not begin until the agreement is signed by a representative of the Department of Fish & Game.

The County Officer or employee with responsibility for administering this Agreement is Chuck Pazzi, Supervising Civil Engineer, Department of Transportation, or successor.

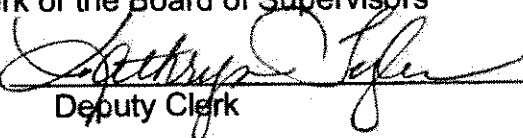
Requesting Department Concurrence:

By: 
James W. Ware, P.E.
Director of Transportation

Date: 3/25/10

County:
By: 
Norma Santiago
Board of Supervisors, "County"

Date: 4-27-10

Attest:
Suzanne Allen de Sanchez
Clerk of the Board of Supervisors
By: 
Deputy Clerk

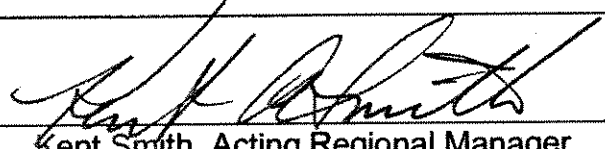
Date: 4-27-10

Contractor: _____
Print and Sign Name

Date _____

Title: _____

Company: _____

Department Representative: 
Kent Smith, Acting Regional Manager

Date: 5/16/10



California Regional Water Quality Control Board Central Valley Region

Katherine Hart, Chair



Arnold
Schwarzenegger
Governor

Linda S. Adams
Secretary for
Environmental
Protection

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>

7 April 2010

RECEIVED

APR 13 2010

DOT EDH

Dustin Harrington
El Dorado County Department of Transportation
Foothills Division
4505 Golden Foothill Parkway
El Dorado Hills, CA 95762

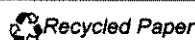
**CLEAN WATER ACT §401 TECHNICALLY CONDITIONED WATER QUALITY
CERTIFICATION AND WASTE DISCHARGE REQUIREMENTS FOR DISCHARGE OF
DREDGED AND/OR FILL MATERIALS; GREEN VALLEY ROAD BRIDGE (25C-0038)
REPLACEMENT PROJECT (WDID#5A09CR00102), EL DORADO COUNTY**

This Order responds to your 25 November 2009 application submittal for Water Quality Certification for a bridge replacement project permanently impacting approximately 0.015 acre of waters of the United States.

WATER QUALITY CERTIFICATION STANDARD CONDITIONS:

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to §13330 of the California Water Code and §3867 of Title 23 of the California Code of Regulations (23 CCR).
2. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
3. The validity of any non-denial certification action shall be conditioned upon total payment of the full fee required under 23 CCR §3833, unless otherwise stated in writing by the certifying agency.
4. Certification is valid for the duration of the described project. This certification is no longer valid if the project (as described) is modified, or coverage under Section 404 of the Clean Water Act has expired. The El Dorado County Department of Transportation shall notify the Central Valley Water Board in writing within 7 days of project completion.

California Environmental Protection Agency



ADDITIONAL TECHNICALLY CONDITIONED CERTIFICATION CONDITIONS:

In addition to the four standard conditions, the El Dorado County Department of Transportation shall satisfy the following:

1. The El Dorado County Department of Transportation shall notify the Central Valley Water Board in writing 7 days in advance of the start of any in-water activities.
2. Except for activities permitted by the U.S. Army Corps under §404 of the Clean Water Act, soil, silt, or other organic materials shall not be placed where such materials could pass into surface water or surface water drainage courses.
3. All areas disturbed by project activities shall be protected from washout or erosion.
4. The El Dorado County Department of Transportation shall maintain a copy of this Certification and supporting documentation (Project Information Sheet) at the Project site during construction for review by site personnel and agencies. All personnel (employees, contractors, and subcontractors) performing work on the proposed project shall be adequately informed and trained regarding the conditions of this Certification.
5. An effective combination of erosion and sediment control Best Management Practices (BMPs) must be implemented and adequately working during all phases of construction.
6. All temporarily affected areas will be restored to pre-construction contours and conditions upon completion of construction activities.
7. The El Dorado County Department of Transportation shall perform surface water sampling: 1) When performing any in-water work; 2) In the event that project activities result in any materials reaching surface waters or; 3) When any activities result in the creation of a visible plume in surface waters. The following monitoring shall be conducted immediately upstream out of the influence of the project and 300 feet downstream of the active work area. Sampling results shall be submitted to this office within two weeks of initiation of sampling and every two weeks thereafter. The sampling frequency may be modified for certain projects with written permission from the Central Valley Water Board.

Parameter	Unit	Type of Sample	Frequency of Sample
Turbidity	NTU	Grab	Every 4 hours during in water work
Settleable Material	m/l	Grab	Same as above.
Visible construction related pollutants	Observations	Visible Inspections	Continuous throughout the construction period

8. Activities shall not cause turbidity increases in surface water to exceed:
- (a) where natural turbidity is less than 1 Nephelometric Turbidity Units (NTUs), controllable factors shall not cause downstream turbidity to exceed 2 NTU;
 - (b) where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU;
 - (c) where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent;
 - (d) where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs;
 - (e) where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

Except that these limits will be eased during in-water working periods to allow a turbidity increase of 15 NTU over background turbidity as measured in surface waters 300 feet downstream from the working area. In determining compliance with the above limits, appropriate averaging periods may be applied provided that beneficial uses will be fully protected. Averaging periods may only be assessed by prior permission of the Central Valley Water Board.

9. Activities shall not cause settleable matter to exceed 0.1 ml/l in surface waters as measured in surface waters 300 feet downstream from the project.
10. The discharge of petroleum products or other excavated materials to surface water is prohibited. Activities shall not cause visible oil, grease, or foam in the work area or downstream. The El Dorado County Department of Transportation shall notify the Central Valley Water Board immediately of any spill of petroleum products or other organic or earthen materials.
11. The El Dorado County Department of Transportation shall notify the Central Valley Water Board immediately if the above criteria for turbidity, settleable matter, oil/grease, or foam are exceeded.
12. The El Dorado County Department of Transportation shall comply with all Department of Fish and Game 1600 requirements for the project.
13. The El Dorado County Department of Transportation must obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activities issued by the State Water Resources Control Board for any project disturbing an area of 1 acre or greater.
14. The Conditions in this water quality certification are based on the information in the attached "Project Information." If the information in the attached Project Information is modified or the project changes, this water quality certification is no longer valid until amended by the Central Valley Water Board.
15. Construction, dewatering, and removal of temporary cofferdams shall not create conditions where the above criteria for turbidity, settleable matter, oil/grease, or foam are exceeded. If water quality criteria are exceeded the El Dorado County Department of Transportation shall notify the Central Valley Water Board immediately.

16. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under State law and section 401 (d) of the federal Clean Water Act. The applicability of any State law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to ensure compliance into this Order.
- a. If the El Dorado County Department of Transportation or a duly authorized representative of the project fails or refuses to furnish technical or monitoring reports, as required under this Order, or falsifies any information provided in the monitoring reports, the applicant is subject to civil, for each day of violation, or criminal liability.
 - b. In response to a suspected violation of any condition of this Order, the Central Valley Water Board may require the El Dorado County Department of Transportation to furnish, under penalty of perjury, any technical or monitoring reports the Central Valley Water Board deems appropriate, provided that the burden, including cost of the reports, shall be in reasonable relationship to the need for the reports and the benefits to be obtained from the reports.
 - c. The El Dorado County Department of Transportation shall allow the staff(s) of the Central Valley Water Board, or an authorized representative(s), upon the presentation of credentials and other documents, as may be required by law, to enter the project premises for inspection, including taking photographs and securing copies of project-related records, for the purpose of assuring compliance with this certification and determining the ecological success of the project.


REGIONAL WATER QUALITY CONTROL BOARD CONTACT PERSON:

Daniel Worth, Environmental Scientist
11020 Sun Center Drive #200
Rancho Cordova, California 95670-6114
dworth@waterboards.ca.gov
(916) 464-4709

WATER QUALITY CERTIFICATION:

I hereby issue an order certifying that any discharge from the El Dorado County Department of Transportation, Green Valley Road Bridge (25C-0038) Replacement Project (WDID#5A09CR00102) will comply with the applicable provisions of §301 ("Effluent Limitations"), §302 ("Water Quality Related Effluent Limitations"), §303 ("Water Quality Standards and Implementation Plans"), §306 ("National Standards of Performance"), and §307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated under State Water Resources Control Board Water Quality Order No. 2003-0017 DWQ "Statewide General Waste Discharge Requirements For Dredged Or Fill Discharges That Have Received State Water Quality Certification (General WDRs)".

Except insofar as may be modified by any preceding conditions, all certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the El Dorado County Department of Transportation's project description and the attached Project Information Sheet, and (b) compliance with all applicable requirements of the Central Valley Water Board's Water Quality Control Plan (Basin Plan).


for Pamela C. Creedon
Executive Officer

Enclosure: Project Information

cc: See enclosure, page 8

PROJECT INFORMATION

Application Date: 25 November 2009

Applicant: Dustin Harrington
El Dorado County Department of Transportation
Foothills Division
4505 Golden Foothill Parkway
El Dorado Hills, CA 95762

Project Name: Green Valley Road Bridge (25C-0038) Replacement Project

Application Number: WDID#5A09CR00102

U.S. Army Corps File Number: Nationwide Permit # 14

Type of Project: Bridge replacement

Project Location: Section 13 and 24, Township 10 North, Range 9 East, MDB&M.
Latitude: 38°43'22" and Longitude: -120°55'58"

County: El Dorado County

Receiving Water(s) (hydrologic unit): Tennessee Creek, Sacramento Hydrologic Basin,
American River Hydrologic Unit #514.31, Weber Creek HSA

Water Body Type: Streambed

Designated Beneficial Uses: The Basin Plan for the Sacramento and San Joaquin River Basins has designated beneficial uses for surface and ground waters within the region. Beneficial uses that could be impacted by the project include: Municipal and Domestic Water Supply (MUN); Agricultural Supply (AGR); Industrial Supply (IND), Hydropower Generation (POW); Groundwater Recharge, Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Warm Freshwater Habitat (WARM); Cold Freshwater Habitat (COLD); and Wildlife Habitat (WILD).

Project Description (purpose/goal): The Green Valley Road Bridge (25C-0038) Replacement Project consist of replacing an existing bridge with a longer and wider concrete bridge to improve roadway safety. The existing Green Valley Road Bridge, located at Tennessee Creek, is a narrow two-lane bridge constructed in 1930. This bridge is functionally obsolete and must be replaced because it cannot be rehabilitated. The replacement bridge will be constructed slightly upstream of the existing bridge. The new bridge will be a pre-stressed slab bridge that is 64 feet long by 52 feet wide. Construction of the new bridge and false work may require the installation of a temporary cofferdam. It is anticipated that construction activities will take two years to complete. Approximately 48 cubic yards of rock slope protection will be used to stabilize the creek banks. This project will permanently impact 0.015 acre of waters of the United States.

Preliminary Water Quality Concerns: Construction activities may impact surface waters with increased turbidity and settleable matter.

Proposed Mitigation to Address Concerns: The El Dorado County Department of Transportation will implement Best Management Practices (BMPs) to control sedimentation and erosion. All temporary affected areas will be restored to pre-construction contours and conditions upon completion of construction activities. The El Dorado County Department of Transportation will conduct turbidity and settleable matter testing during in-water work, stopping work if Basin Plan criteria are exceeded or are observed.

Fill/Excavation Area: Approximately 48 cubic yards of clean rock rip-rap and concrete will be placed in 0.015 acre of waters of the United States.

Dredge Volume: None

U.S. Army Corps of Engineers Permit Number: Nationwide Permit #14

Department of Fish and Game Streambed Alteration Agreement: The El Dorado County Department of Transportation applied for a Streambed Alteration Agreement on 23 November 2009.

Possible Listed Species: California red-legged frog

Status of CEQA Compliance: The El Dorado County Department of Transportation approved the Mitigated Negative Declaration for this project and filed a Notice of Determination on 10 December 2008 (State Clearinghouse Number 2008102030).

Compensatory Mitigation: None required by the Central Valley Water Board.

Application Fee Provided: Total fees of \$695.00 have been submitted to the Central Valley Water Board as required by 23 CCR §3833b(3)(A) and by 23 CCR §2200(e).

DISTRIBUTION LIST

U.S. Army Corp of Engineers
Sacramento District Office
Regulatory Section, Room 1480
1325 J Street
Sacramento, CA 95814-2922

Dave Smith
Wetlands Section Chief (W-3)
United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

United States Fish & Wildlife Service
Sacramento Fish & Wildlife Office
2800 Cottage Way
Sacramento, CA 95825

Jeff Drongesen
Department of Fish and Game
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670

Bill Orme
State Water Resources Control Board
401 Certification and Wetlands Unit Chief
P.O. Box 100
Sacramento, CA 95814

Bill Jennings
CA Sportfishing Protection Alliance
3536 Rainier Avenue
Stockton, CA 95204



U S Army Corps of
Engineers
Sacramento District

Nationwide Permit Summary

33 CFR Part 330; Issuance of Nationwide Permits – March 19, 2007 includes corrections of May 8, 2007 and addition of regional conditions December 2007

14. Linear Transportation Projects. Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10 acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 27.) (Sections 10 and 404)

Note: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4)

the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP.

1. Navigation.

(a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

3 Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or

A. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as appropriate, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact

restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

15. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

16. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

17. Endangered Species.

(a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. No

activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide Web pages at <http://www.fws.gov/> and <http://www.noaa.gov/fisheries.html> respectively.

18. Historic Properties.

(a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to

notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

19. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment. The district engineer may also designate additional critical resource waters after notice and opportunity for comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWP 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWP 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 27, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

20 Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10 acre and require pre-construction notification, unless the district engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. For wetland losses of 1/10 acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the

aquatic environment. Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream restoration, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWP. For example, if an NWP has an acreage limit of 1/2 acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2 acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

21. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR

330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

22. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

23. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

24. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

25. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

26. Compliance Certification. Each permittee who received an NWP verification from the Corps must submit a signed certification regarding the completed work and any required mitigation. The certification form must be forwarded by the Corps with the NWP verification letter and will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general or specific conditions;

(b) A statement that any required mitigation was completed in accordance with the permit conditions; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

27. Pre-Construction Notification.

(a) **Timing.** Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, as a general rule, will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) Forty-five calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 17 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 18 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) is completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee cannot begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided result in a quicker decision.);

(4) The PCN must include a delineation of special aquatic sites and other waters of the United States on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters of the United States, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, where appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10 acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic

property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination:

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWP and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP 48 activities requiring pre-construction notification and for other NWP activities requiring pre-construction notification to the district engineer that result in the loss of greater than 1/2-acre of waters of the United States, the district engineer will immediately provide (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy of the PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps multiple copies of pre-construction notifications to expedite agency coordination.

(5) For NWP 48 activities that require reporting, the district engineer will provide a copy of each report within 10 calendar days of receipt to the appropriate regional office of the NMFS.

(e) In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If the proposed activity requires a PCN and will result in a loss of greater than 1/10 acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any conditions the district engineer deems necessary. The district engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP.

If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant

submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan.

- (a) **28. Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

B. Regional Conditions:

I. Sacramento District (All States, except Colorado)

1. When pre-construction notification (PCN) is required, the prospective permittee shall notify the Sacramento District in accordance with General Condition 27 using either the South Pacific Division Preconstruction Notification (PCN) Checklist or a completed application form (ENG Form 4345). In addition, the PCN shall include:

- a. A written statement explaining how the activity has been designed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States;
- b. Drawings, including plan and cross-section views, clearly depicting the location, size and dimensions of the proposed activity. The drawings shall contain a title block, legend and scale, amount (in cubic yards) and size (in acreage) of fill in Corps jurisdiction, including both permanent and temporary fills/structures. The ordinary high water mark or, if tidal waters, the high tide line should be shown (in feet), based on National Geodetic Vertical Datum (NGVD) or other appropriate referenced elevation; and
- c. Pre-project color photographs of the project site taken from designated locations documented on the plan drawing.

2. The permittee shall complete compensatory mitigation required by special conditions of the NWP verification before or concurrent with construction of the authorized activity, except when specifically determined to be impracticable by the Sacramento District. When project mitigation involves use of a mitigation bank or in-lieu fee program, payment shall be made before commencing construction.

3. The permittee shall record the NWP verification with the Registrar of Deeds or other appropriate official charged with the responsibility for maintaining records of title to or interest in real property against areas (1) designated to be preserved as part of mitigation for authorized impacts, including any associated covenants or restrictions, or (2) where structures such as boat ramps or docks, marinas, piers, and permanently moored vessels will be constructed in or adjacent to navigable waters (Section 10 and Section 404). The recordation shall also include a map showing the surveyed location of the authorized structure and any associated areas preserved to minimize or compensate for project impacts.

4. The permittee shall place wetlands, other aquatic areas, and any vegetative buffers preserved as part of mitigation for impacts into a separate "preserve" parcel prior to discharging

dredged or fill material into waters of the United States, except where specifically determined to be impracticable by the Sacramento District. Permanent legal protection shall be established for all preserve parcels, following Sacramento District approval of the legal instrument.

5. The permittee shall allow Corps representatives to inspect the authorized activity and any mitigation areas at any time deemed necessary to determine compliance with the terms and conditions of the NWP verification. The permittee will be notified in advance of an inspection.

6. For NWPs 29, 39, 40, 42, 43, 44, and 46, requests to waive the 300 linear foot limitation for intermittent or ephemeral waters of the U.S. shall include an evaluation of functions and services provided by the waterbody taking into account the watershed, measures to be implemented to avoid and minimize impacts, other measures to avoid and minimize that were found to be impracticable, and a mitigation plan for offsetting impacts.

7. Road crossings shall be designed to ensure fish passage, especially for anadromous fisheries. Permittees shall employ bridge designs that span the stream or river, utilize pier or pile supported structures, or involve large bottomless culverts with a natural streambed, where the substrate and streamflow conditions approximate existing channel conditions. Approach fills in waters of the United States below the ordinary high water mark are not authorized under the NWPs, except where avoidance has specifically been determined to be impracticable by the Sacramento District.

8. For NWP 12, clay blocks, bentonite, or other suitable material shall be used to seal the trench to prevent the utility line from draining waters of the United States, including wetlands.

9. For NWP 13, bank stabilization shall include the use of vegetation or other biotechnical design to the maximum extent practicable. Activities involving hard-armoring of the bank toe or slope requires submission of a PCN per General Condition 27.

10. For NWP 23, the PCN shall include a copy of the signed Categorical Exclusion document and final agency determinations regarding compliance with Section 7 of the Endangered Species Act, Essential Fish Habitat under the Magnussen-Stevens Act, and Section 106 of the National Historic Preservation Act.

11. For NWP 44, the discharge shall not cause the loss of more than 300 linear feet of streambed. For intermittent and ephemeral streams, the 300 linear foot limit may be waived in writing by the Sacramento District. This NWP does not authorize discharges in waters of the United States supporting anadromous fisheries.

12. For NWPs 29 and 39, channelization or relocation of intermittent or perennial drainage, is not authorized, except when, as determined by the Sacramento District, the relocation would result in a net increase in functions of the aquatic ecosystem within the watershed.

13. For NWP 33, temporary fills for construction access in waters of the United States supporting fisheries shall be accomplished with clean, washed spawning quality gravels where practicable as determined by the Sacramento District, in consultation with appropriate federal and state wildlife agencies.

14. For NWP 46, the discharge shall not cause the loss of greater than 0.5 acres of waters of the United States or the loss of more than 300 linear feet of ditch, unless this 300 foot linear foot limit is waived in writing by the Sacramento District.

15. For NWPs 29, 39, 40, 42, and 43, upland vegetated buffers shall be established and maintained in perpetuity, to the maximum extent practicable, next to all preserved open waters, streams and wetlands including created, restored, enhanced or preserved waters of the U.S., consistent with General Condition 20. Except in unusual circumstances, vegetated buffers shall be at least 50 feet in width.

16. All NWPs except 3, 6, 20, 27, 32, 38, and 47, are revoked for activities in histosols and fens and in wetlands contiguous with fens. Fens are defined as slope wetlands with a histic epipedon that are hydrologically supported by groundwater. Fens are normally saturated throughout the growing season, although they may not be during drought conditions. For NWPs 3, 6, 20, 27, 32, and 38, prospective permittees shall submit a PCN to the Sacramento District in accordance with General Condition 27.

17. For all NWPs, when activities are proposed within 100 feet of the point of groundwater discharge of a natural spring, prospective permittees shall submit a PCN to the Sacramento District in accordance with General Condition 27. A spring source is defined as any location where ground water emanates from a point in the ground. For purposes of this condition, springs do not include seeps or other discharges which lack a defined channel.

II. California Only

1. In the Lake Tahoe Basin, all NWPs are revoked. Activities in this area shall be authorized under Regional General Permit 16 or through an individual permit.

2. In the Primary and Secondary Zones of the Legal Delta, NWPs 29 and 39 are revoked. New development activities in the Legal Delta will be reviewed through the Corps' standard permit process.

III. Nevada Only

1. In the Lake Tahoe Basin, all NWPs are revoked. Activities in this area shall be authorized under Regional General Permit 16 or through an individual permit.

IV. Utah Only

1. For all NWPs, except NWP 47, prospective permittees shall submit a PCN in accordance with General Condition 27 for any activity, in waters of the United States, below 4217 feet mean sea level (msl) adjacent to the Great Salt Lake and below 4500 feet msl adjacent to Utah Lake.

2. A PCN is required for all bank stabilization activities in a perennial stream that would affect more than 100 linear feet of stream

3. For NWP 27, facilities for controlling stormwater runoff, construction of water parks such as kayak courses, and use of grout or concrete to construct in-stream structures are not authorized. A PCN is required for all projects exceeding 1500 linear feet as measured on the stream thalweg, using in stream structures exceeding 50 cubic yards per structure and/or incorporating grade control structures exceeding 1 foot vertical

drop. For any stream restoration project, the post project stream sinuosity shall be appropriate to the geomorphology of the surrounding area and shall be equal to, or greater than, pre project sinuosity. Sinuosity is defined as the ratio of stream length to project reach length. Structures shall allow the passage of aquatic organisms, recreational water craft or other navigational activities unless specifically waived in writing by the District Engineer.

V. Colorado Only

1. Final Regional Conditions Applicable to Specific Nationwide Permits within Colorado.

a. Nationwide Permit Nos. 12 and 14, Utility Line Activities and Linear Transportation Projects. In the Colorado River Basin, utility line and road activities crossing perennial water or special aquatic sites require notification to the District Engineer in accordance with General Condition 27 (Pre-Construction Notification).

b. Nationwide Permit No. 13 Bank Stabilization. In Colorado, bank stabilization activities necessary for erosion prevention in streams that average less than 20 feet in width (measured between the ordinary high water marks) are limited to the placement of no more than 1/4 cubic yard of suitable fill* material per running foot below the plane of the ordinary high water mark. Activities greater than 1/4 cubic yard may be authorized if the permittee notifies the District Engineer in accordance with General Condition 27 (Pre-Construction Notification) and the Corps determines the adverse environmental effects are minimal. [* See (g) for definition of Suitable Fill]

c. Nationwide Permit No. 27 Aquatic Habitat Restoration, Establishment, and Enhancement Activities.

(1) For activities that include a fishery enhancement component, the Corps will send the Pre-Construction Notification to the Colorado Division of Wildlife (CDOW) for review. In accordance with General Condition 27 (Pre-Construction Notification), CDOW will have 10 days from the receipt of Corps notification to indicate that they will be commenting on the proposed project. CDOW will then have an additional 15 days after the initial 10-day period to provide those comments. If CDOW raises concerns, the applicant may either modify their plan, in coordination with CDOW, or apply for a standard individual permit.

(2) For activities involving the length of a stream, the post-project stream sinuosity will not be significantly reduced, unless it is demonstrated that the reduction in sinuosity is consistent with the natural morphological evolution of the stream (sinuosity is the ratio of stream length to project reach length).

(3) Structures will allow the upstream and downstream passage of aquatic organisms, including fish native to the reach, as well as recreational water craft or other navigational activities, unless specifically waived in writing by the District Engineer. The use of grout and/or concrete in

building structures is not authorized by this nationwide permit.

(4) The construction of water parks (i.e., kayak courses) and flood control projects are not authorized by this nationwide permit.

d. Nationwide Permits Nos. 29 and 39; Residential Developments and Commercial and Institutional Developments. A copy of the existing FEMA/locally-approved floodplain map must be submitted with the Pre-Construction Notification. When reviewing proposed developments, the Corps will utilize the most accurate and reliable FEMA/locally-approved pre-project floodplain mapping, not post-project floodplain mapping based on a CLOMR or LOMR. However, the Corps will accept revisions to existing floodplain mapping if the revisions resolve inaccuracies in the original floodplain mapping and if the revisions accurately reflect pre-project conditions.

2. Final Regional Conditions Applicable to All Nationwide Permits within Colorado

e. Removal of Temporary Fills. General Condition 13 (Removal of Temporary Fills) is amended by adding the following: When temporary fills are placed in wetlands in Colorado, a horizontal marker (i.e. fabric, certified weed-free straw, etc.) must be used to delineate the existing ground elevation of wetlands that will be temporarily filled during construction.

f. Spawning Areas. General Condition 3 (Spawning Areas) is amended by adding the following: In Colorado, all Designated Critical Resource Waters (see enclosure 1) are considered important spawning areas. Therefore, in accordance with General Condition 19 (Designated Critical Resource Waters), the discharge of dredged or fill material is not authorized by the following nationwide permits in these waters: NWP 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50. In addition, in accordance with General Condition 27 (Pre-Construction Notification), notification to the District Engineer is required for use of the following nationwide permits in these waters: NWP 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37 and 38”.

g. Suitable Fill. In Colorado, use of broken concrete as fill material requires notification to the District Engineer in accordance with General Condition 27 (Pre-Construction Notification). Permittees must demonstrate that soft engineering methods utilizing native or non-manmade materials are not practicable (with respect to cost, existing technology, and logistics), before broken concrete is allowed as suitable fill. Use of broken concrete with exposed rebar is prohibited in perennial waters and special aquatic sites.

h. Invasive Aquatic Species. General Condition 11 is amended by adding the following condition for work in perennial or intermittent waters of the United States: If heavy equipment is used for the subject project that was previously working in another stream, river, lake, pond, or wetland within 10 days of initiating work, one the

following procedures is necessary to prevent the spread of New Zealand Mud Snails and other aquatic hitchhikers:

(1) Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and keep the equipment dry for 10 days. OR

(2) Remove all mud and debris from Equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray/soak equipment with either a 1:1 solution of Formula 409 Household Cleaner and water, or a solution of Sparquat 256 (5 ounces Sparquat per gallon of water). Treated equipment must be kept moist for at least 10 minutes. OR

(3) Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray/soak equipment with water greater than 120 degrees F for at least 10 minutes.

3. Final Regional Conditions for Revocation/Special Notification Specific to Certain Geographic Areas

i. Fens: All Nationwide permits, except permit Nos. 3, 6, 20, 27, 32, 38 and 47, are revoked in fens and wetlands adjacent to fens. Use of nationwide permit Nos. 3, 20, 27 and 38, requires notification to the District Engineer, in accordance with General Condition 27 (Pre-Construction Notification), and the permittee may not begin the activity until the Corps determines the adverse environmental effects are minimal. The following defines a fen:

Fen soils (histosols) are normally saturated throughout the growing season, although they may not be during drought conditions. The primary source of hydrology for fens is groundwater. Histosols are defined in accordance with the U.S. Department of Agriculture, Natural Resources Conservation Service publications on Keys to Soil Taxonomy and Field Indicators of Hydric Soils in the United States (<http://soils.usda.gov/technical/classification/taxonomy>).

j. Springs: Within the state of Colorado, all NWP, except permit 47 (original 'C'), require preconstruction notification pursuant to General Condition 27 for discharges of dredged or fill material within 100 feet of the point of groundwater discharge of natural springs. A spring source is defined as any location where groundwater emanates from a point in the ground. For purposes of this regional condition, springs do not include seeps or other discharges which do not have a defined channel.

4. Additional Information

The following provides additional information regarding minimization of impacts and compliance with existing general Conditions:

a. Permittees are reminded of the existing General Condition No. 6 which prohibits the use of unsuitable material. Organic debris, building waste, asphalt, car bodies, and trash are not suitable material. Also, General Condition 12 requires appropriate erosion and sediment controls (i.e. all fills must be permanently stabilized to

prevent erosion and siltation into waters and wetlands at the earliest practicable date). Streambed material or other small aggregate material placed along a bank as stabilization will not meet General Condition 12. Also, use of erosion control mats that contain plastic netting may not meet General Condition 12 if deemed harmful to wildlife.

b. Designated Critical Resource Waters in Colorado. In Colorado, a list of designated Critical Resource Waters has been published in accordance with General Condition 19 (Designated Critical Resource Waters). This list will be published on the Albuquerque District Regulatory home page (<http://www.spa.usace.army.mil/reg/>)

c. Federally-Listed Threatened and Endangered Species. General condition 17 requires that non-federal permittees notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project. Information on such species, to include occurrence by county in Colorado, may be found at the following U.S. Fish and Wildlife Service website:
http://www.fws.gov/mountain%2Dprairie/endspp/name_county_search.htm

C. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

D. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration, establishment (creation), enhancement, or preservation of aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Discharge: The term "discharge" means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic

resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands

contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWP, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects waterbodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 20.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete project: The term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility (see definition). For linear projects, a “single and complete project” is all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal

interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWP, a waterbody is a jurisdictional water of the United States that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent--meaning bordering, contiguous, or neighboring--to a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

ENCROACHMENT PERMIT

TR-0120 (REV 6/200)

Permit No. 0310-NTK0256	
Dist/Co/Rte/PM 03-ED-50-8.6/12.2	
Date May 25, 2010	
Fee Paid \$ Exempt	Deposit \$ N/A
Performance Bond Amount (1) \$ N/A	Payment Bond Amount (2) \$ N/A
Bond Company	
Bond Number (1)	Bond Number (2)

In compliance with (Check one):

- Your application of April 16, 2010
- Utility Notice No. _____ of _____
- Agreement No. _____ of _____
- RW Contract No. _____ of _____

TO:

El Dorado County Dept. of Transportation
4505 Golden Foothill Parkway
El Dorado Hills, CA 95762
Attn: Dustin Harrington
(916) 358-3680

Ref No.

, PERMITTEE

and subject to the following, PERMISSION IS HEREBY GRANTED to:

Install Portable Changeable Message Sign (PCMS) boards on State Highway 50 to notify motorist of road work on Green Valley Road and on North Shingle Road intersection in the city of Shingle Springs as per attached plan and following permit provisions:

1. Permittee shall place PCMS boards in the State's right of way only during working hours, and shall be stored outside during non-working hours.
2. Permittee shall place PCMS boards minimum 12 feet away from the edge of the pavement.
3. Locations for each PCMS sign shall be approved by the Field Inspector.

Permittee shall contact State inspector Tara McCann, Cell (530) 755-7371, SEVEN (7) working days prior to commencing work, to arrange a pre-job meeting. All work shall be conducted and completed to the satisfaction of Caltrans representative. Immediately following completion of the work permitted herein, the Permittee shall fill out and mail the Notice of Completion attached to this Permit.

THIS PERMIT IS NOT A PROPERTY RIGHT AND DOES NOT TRANSFER WITH THE PROPERTY TO A NEW OWNER.

The following attachments are also included as part of this permit (Check applicable):

- Yes No General Provisions
- Yes No Utility Maintenance Provisions
- Yes No Special Provisions **TRAFFIC CONTROL**
- Yes No A Cal-OSHA permit, if required: Permit No. _____
- Yes No As-Built Plans Submittal Route Slip for Locally Advertised Projects
- Yes No Storm Water Pollution Protection Plan

In addition to fee, the permittee will be billed actual costs for:

- Yes No Review
- Yes No Inspection
- Yes No Field work

(If any Caltrans effort expended)

Yes No The information in the environmental documentation has been reviewed and considered prior to approval of this permit.

This permit is void unless the work is completed before June 1, 2011

This permit is to be strictly construed and no other work other than specifically mentioned is hereby authorized. No project work shall be commenced until all other necessary permits and environmental clearances have been obtained

Tara McCann-Mook
3165 Gold Valley Drive
Rancho Cordova, CA 95742 - 6588
Cellular (530) 755-7371

APPROVED:

JODY JONES, District Director

BY:

Shaun A. Rice
SHAUN A. RICE, Chief-Encroachment Permits Branch

cc: Rusty Grout Maint-Sunrise Region

ADA Notice

For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 653-3657 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION
ENCROACHMENT PERMIT GENERAL PROVISIONS
TR-0045 (REV. 05/2007)

1. **AUTHORITY:** The Department's authority to issue encroachment permits is provided under, Div. 1, Chpt. 3, Art. 1, Sect. 660 to 734 of the Streets and Highways Code.
2. **REVOCATION:** Encroachment permits are revocable on five days notice unless otherwise stated on the permit and except as provided by law for public corporations, franchise holders, and utilities. These General Provisions and the Encroachment Permit Utility Provisions are subject to modification or abrogation at any time. Permittees' joint use agreements, franchise rights, reserved rights or any other agreements for operating purposes in State highway right of way are exceptions to this revocation.
3. **DENIAL FOR NONPAYMENT OF FEES:** Failure to pay permit fees when due can result in rejection of future applications and denial of permits.
4. **ASSIGNMENT:** No party other than the permittee or permittee's authorized agent is allowed to work under this permit.
5. **ACCEPTANCE OF PROVISIONS:** Permittee understands and agrees to accept these General Provisions and all attachments to this permit, for any work to be performed under this permit.
6. **BEGINNING OF WORK:** When traffic is not impacted (see Number 35), the permittee shall notify the Department's representative, two (2) days before the intent to start permitted work. Permittee shall notify the Department's Representative if the work is to be interrupted for a period of five (5) days or more, unless otherwise agreed upon. All work shall be performed on weekdays during regular work hours, excluding holidays, unless otherwise specified in this permit.
7. **STANDARDS OF CONSTRUCTION:** All work performed within highway right of way shall conform to recognized construction standards and current Department Standard Specifications, Department Standard Plans High and Low Risk Facility Specifications, and Utility Special Provisions. Where reference is made to "Contractor and Engineer," these are amended to be read as "Permittee and Department representative."
8. **PLAN CHANGES:** Changes to plans, specifications, and permit provisions are not allowed without prior approval from the State representative.
9. **INSPECTION AND APPROVAL:** All work is subject to monitoring and inspection. Upon completion of work, permittee shall request a final inspection for acceptance and approval by the Department. The local agency permittee shall not give final construction approval to its contractor until final acceptance and approval by the Department is obtained.
10. **PERMIT AT WORKSITE:** Permittee shall keep the permit package or a copy thereof, at the work site and show it upon request to any Department representative or law enforcement officer. If the permit package is not kept and made available at the work site, the work shall be suspended.
11. **CONFLICTING ENCROACHMENTS:** Permittee shall yield start of work to ongoing, prior authorized, work adjacent to or within the limits of the project site. When existing encroachments conflict with new work, the permittee shall bear all cost for rearrangements, (e.g., relocation, alteration, removal, etc.).
12. **PERMITS FROM OTHER AGENCIES:** This permit is invalidated if the permittee has not obtained all permits necessary and required by law, from the Public Utilities Commission of the State of California (PUC), California Occupational Safety and Health Administration (Cal-OSHA), or any other public agency having jurisdiction.
13. **PEDESTRIAN AND BICYCLIST SAFETY:** A safe minimum passageway of 4' shall be maintained through the work area at existing pedestrian or bicycle facilities. At no time shall pedestrians be diverted onto a portion of the street used for vehicular traffic. At locations where safe alternate passageways cannot be provided, appropriate signs and barricades shall be installed at the limits of construction and in advance of the limits of construction at the nearest crosswalk or intersection to detour pedestrians to facilities across the street. Attention is directed to Section 7-1.09 Public Safety of the Department Standard Specifications.
14. **PUBLIC TRAFFIC CONTROL:** As required by law, the permittee shall provide traffic control protection warning signs, lights, safety devices, etc., and take all other measures necessary for traveling public's safety. While providing traffic control, the needs and control of all road users [motorists, bicyclists and pedestrians, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA)] shall be an essential part of the work activity.

Day and night time lane closures shall comply with the California Manual on Uniform Traffic Control Devices (Part 6, Temporary Traffic Control), Standard Plans, and Standard Specifications for traffic control systems. These General Provisions are not intended to impose upon the permittee, by third parties, any duty or standard of care, greater than or different from, as required by law.
15. **MINIMUM INTERFERENCE WITH TRAFFIC:** Permittee shall plan and conduct work so as to create the least possible inconvenience to the traveling public; traffic shall not be unreasonably delayed. On conventional highways, permittee shall place properly attired flagger(s) to stop or warn the traveling public in compliance with the California Manual on Uniform Traffic Control Devices (Chapter 6E, Flagger Control).
16. **STORAGE OF EQUIPMENT AND MATERIALS:** The storage of equipment or materials is not allowed within State highway right-of-way, unless specified within the Special Provisions of this specific encroachment permit. If Encroachment Permit Special Provisions allow for the storage of equipment or materials within the State right of way, the equipment and material storage shall comply with Standard Specifications, Standard Plans, Special Provisions, and the Highway Design Manual. The clear recovery zone widths must be followed and are the minimum desirable for the type of facility indicated below: freeways and expressways - 30', conventional highways (no curbs) - 20', conventional highways (with curbs) - 1.5'. If a fixed object cannot be eliminated, moved outside the clear recovery zone, or modified to be made yielding, it should be shielded by a guardrail or a crash cushion.
17. **CARE OF DRAINAGE:** Permittee shall provide alternate drainage for any work interfering with an existing drainage facility in compliance with the Standard Specifications, Standard Plans and/or as directed by the Department's representative.
18. **RESTORATION AND REPAIRS IN RIGHT OF WAY:** Permittee is responsible for restoration and repair of State highway right of way resulting from permitted work (State Streets and Highways Code, Sections 670 et. seq.).

19. **RIGHT OF WAY CLEAN UP:** Upon completion of work, permittee shall remove and dispose of all scraps, brush, timber, materials, etc. off the right of way. The aesthetics of the highway shall be as it was before work started.
20. **COST OF WORK:** Unless stated in the permit, or a separate written agreement, the permittee shall bear all costs incurred for work within the State right of way and waives all claims for indemnification or contribution from the State.
21. **ACTUAL COST BILLING:** When specified in the permit, the Department will bill the permittee actual costs at the currently set hourly rate for encroachment permits.
22. **AS-BUILT PLANS:** When required, permittee shall submit one (1) set of folded as-built plans within thirty (30) days after completion and approval of work in compliance with requirements listed as follows:
 1. Upon completion of the work provided herein, the permittee shall send one vellum or paper set of As-Built plans, to the State representative. Mylar or paper sepia plans are not acceptable.
 2. All changes in the work will be shown on the plans, as issued with the permit, including changes approved by Encroachment Permit Rider.
 3. The plans are to be stamped or otherwise noted AS-BUILT by the permittee's representative who was responsible for overseeing the work. Any original plan that was approved with a State stamp, or Caltrans representative signature, shall be used for producing the As-Built plans.
 4. If As-Built plans include signing or striping, the dates of signing or striping removal, relocation, or installation shall be shown on the plans when required as a condition of the permit. When the construction plans show signing and striping for staged construction on separate sheets, the sheet for each stage shall show the removal, relocation or installation dates of the appropriate staged striping and signing.
 5. As-Built plans shall contain the Permit Number, County, Route, and Post Mile on each sheet.
 6. Disclaimer statement of any kind that differ from the obligations and protections provided by Sections 6735 through 6735.6 of the California Business and Professions Code, shall not be included on the As-Built plans. Such statements constitute non-compliance with Encroachment Permit requirements, and may result in the Department of Transportation retaining Performance Bonds or deposits until proper plans are submitted. Failure to comply may also result in denial of future permits, or a provision requiring a public agency to supply additional bonding.
23. **PERMITS FOR RECORD PURPOSES ONLY:** When work in the right of way is within an area under a Joint Use Agreement (JUA) or a Consent to Common Use Agreement (CCUA), a fee exempt permit is issued to the permittee for the purpose of providing a notice and record of work. The Permittee's prior rights shall be preserved without the intention of creating new or different rights or obligations. "Notice and Record Purposes Only" shall be stamped across the face of the permit.
24. **BONDING:** The permittee shall file bond(s), in advance, in the amount set by the Department. Failure to maintain bond(s) in full force and effect will result in the Department stopping of all work and revoking permit(s). Bonds are not required of public corporations or privately owned utilities, unless permittee failed to comply with the provision and conditions under a prior permit. The surety company is responsible for any latent defects as provided in California Code of Civil Procedures, Section 337.15. Local agency permittee shall comply with requirements established as follows: In recognition that

project construction work done on State property will not be directly funded and paid by State, for the purpose of protecting stop notice claimants and the interests of State relative to successful project completion, the local agency permittee agrees to require the construction contractor furnish both a payment and performance bond in the local agency's name with both bonds complying with the requirements set forth in Section 3-1.02 of State's current Standard Specifications before performing any project construction work. The local agency permittee shall defend, indemnify, and hold harmless the State, its officers and employees from all project construction related claims by contractors and all stop notice or mechanic's lien claimants. The local agency also agrees to remedy, in a timely manner and to State's satisfaction, any latent defects occurring as a result of the project construction work.

25. **FUTURE MOVING OF INSTALLATIONS:** Permittee understands and agrees to relocate a permitted installation upon notice by the Department. Unless under prior property right or agreement, the permittee shall comply with said notice at his sole expense.
26. **ARCHAEOLOGICAL/HISTORICAL:** If any archaeological or historical resources are revealed in the work vicinity, the permittee shall immediately stop work, notify the Department's representative, retain a qualified archaeologist who shall evaluate the site, and make recommendations to the Department representative regarding the continuance of work.
27. **PREVAILING WAGES:** Work performed by or under a permit may require permittee's contractors and subcontractors to pay appropriate prevailing wages as set by the Department of Industrial Relations. Inquiries or requests for interpretations relative to enforcement of prevailing wage requirements are directed to State of California Department of Industrial Relations, 525 Golden Gate Avenue, San Francisco, California 94102.
28. **RESPONSIBILITY FOR DAMAGE:** The State of California and all officers and employees thereof, including but not limited to the Director of Transportation and the Deputy Director, shall not be answerable or accountable in any manner for injury to or death of any person, including but not limited to the permittee, persons employed by the permittee, persons acting in behalf of the permittee, or for damage to property from any cause. The permittee shall be responsible for any liability imposed by law and for injuries to or death of any person, including but not limited to the permittee, persons employed by the permittee, persons acting in behalf of the permittee, or for damage to property arising out of work, or other activity permitted and done by the permittee under a permit, or arising out of the failure on the permittee's part to perform his obligations under any permit in respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work, or other activity or at any subsequent time, work or other activity is being performed under the obligations provided by and contemplated by the permit.

The permittee shall indemnify and save harmless the State of California, all officers, employees, and State's contractors, thereof, including but not limited to the Director of Transportation and the Deputy Director, from all claims, suits or actions of every name, kind and description brought for or on account of injuries to or death of any person, including but not limited to the permittee, persons employed by the permittee, persons acting in behalf of the permittee and the public, or damage to property resulting from the performance of work or other activity under the permit, or arising out of the failure on the permittee's part to perform his obligations under any permit in respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work, or other activity or at any subsequent time, work or other activity is being performed under the obligations provided by and contemplated by the permit, except as otherwise provided by statute.

The duty of the permittee to indemnify and save harmless includes the duties to defend as set forth in Section 2778 of the Civil Code. The permittee waives any and all rights to any type of expressed or implied indemnity against the State, its officers, employees, and State contractors. It is the intent of the parties that the permittee will indemnify and hold harmless the State, its officers, employees, and State's contractors, from any and all claims, suits or actions as set forth above regardless of the existence or degree of fault or negligence, whether active or passive, primary or secondary, on the part of the State, the permittee, persons employed by the permittee, or acting on behalf of the permittee.

For the purpose of this section, "State's contractors" shall include contractors and their subcontractors under contract to the State of California performing work within the limits of this permit.

29. **NO PRECEDENT ESTABLISHED:** This permit is issued with the understanding that it does not establish a precedent.

30. **FEDERAL CIVIL RIGHTS REQUIREMENTS FOR PUBLIC ACCOMMODATION:**

A. The permittee, for himself, his personal representative, successors in interest, and assigns as part of the consideration hereof, does hereby covenant and agree that:

1. No person on the grounds of race, color, or national origin shall be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

2. That in connection with the construction of any improvements on said lands and the furnishings of services thereon, no discrimination shall be practiced in the selection and retention of first-tier subcontractors in the selection of second-tier subcontractors.

3. That such discrimination shall not be practiced against the public in their access to and use of the facilities and services provided for public accommodations (such as eating, sleeping, rest, recreation), and operation on, over, or under the space of the right of way.

4. That the permittee shall use the premises in compliance with all other requirements imposed pursuant to Title 15, Code of Federal Regulations, Commerce and Foreign Trade, Subtitle A, Office of the Secretary of Commerce, Part 8 (15 C.F.R. Part 8) and as said Regulations may be amended.

5. That in the event of breach of any of the above nondiscrimination covenants, the State shall have the right to terminate the permit and to re-enter and repossess said land and the land and the facilities thereon, and hold the same as if said permit had never been made or issued.

31. **MAINTENANCE OF HIGHWAYS:** The permittee agrees, by acceptance of a permit, to properly maintain any encroachment. This assurance requires the permittee to provide inspection and repair any damage, at permittee's expense, to State facilities resulting from the encroachment.

32. **SPECIAL EVENTS:** In accordance with subdivision (a) of Streets and Highways Code Section 682.5, the Department of Transportation shall not be responsible for the conduct or operation of the permitted activity, and the applicant agrees to defend, indemnify, and hold harmless the State and the city or county against any and all claims arising out of any activity for which the permit is issued.

The permittee understands and agrees to comply with the obligations of Titles II and III of the Americans with Disabilities Act of 1990 in the conduct of the event, and further agrees to indemnify and save harmless the State of California, all officers and employees thereof, including but not limited to the Director of Transportation, from any claims or liability arising out of or by virtue of said Act.

33. **PRIVATE USE OF RIGHT OF WAY:** Highway right of way shall not be used for private purposes without compensation to the State.

The gifting of public property use and therefore public funds is prohibited under the California Constitution, Article 16.

34. **FIELD WORK REIMBURSEMENT:** Permittee shall reimburse State for field work performed on permittee's behalf to correct or remedy hazards or damaged facilities, or clear debris not attended to by the permittee.

35. **NOTIFICATION OF DEPARTMENT AND TMC:** The permittee shall notify the Department's representative and the Transportation Management Center (TMC) at least 7 days before initiating a lane closure or conducting an activity that may cause a traffic impact. A confirmation notification should occur 3 days before closure or other potential traffic impacts. In emergency situations when the corrective work or the emergency itself may affect traffic, TMC and the Department's representative shall be notified as soon as possible.

36. **SUSPENSION OF TRAFFIC CONTROL OPERATION:** The permittee, upon notification by the Department's representative, shall immediately suspend all lane closure operations and any operation that impedes the flow of traffic. All costs associated with this suspension shall be borne by the permittee.

37. **UNDERGROUND SERVICE ALERT (USA) NOTIFICATION:** Any excavation requires compliance with the provisions of Government Code Section 4216 et. seq., including, but not limited to notice to a regional notification center, such as Underground Service Alert (USA). The permittee shall provide notification at least 48 hours before performing any excavation work within the right of way.

County of El Dorado, State of California
Department of Transportation

Contract No. PW 09-30407 / CIP No. 77109

**GREEN VALLEY ROAD AT TENNESSEE CREEK
BRIDGE REPLACEMENT PROJECT**

THIS AGREEMENT ("Agreement") approved by the Board of Supervisors this ____st day of _____, in the year of 2011, made and concluded, in duplicate, between the COUNTY OF EL DORADO, a political subdivision of the State of California, by the Department of Transportation thereof, the party of the first part hereinafter called "County," and [contractor], party of the second part hereinafter called "Contractor."

RECITALS:

WHEREAS, County has caused the above-captioned project to be let to formal bidding process; and

WHEREAS, Contractor has duly submitted a bid response for the captioned project upon which County has awarded this contract;

NOW, THEREFORE, the parties hereto have mutually covenanted and agreed, and by these presents do covenant and agree, each with the other, as follows:

Article 1. THE WORK

The improvement contemplated in the performance of this Contract is an improvement over which the County shall exercise general supervision. The County, therefore, shall have the right to assume full and direct control over this Contract whenever the County, at its sole discretion, shall determine that its responsibility is so required.

Contractor shall complete the Work as specified or indicated under the Bid Schedule(s) of County's Contract Documents entitled:

**GREEN VALLEY ROAD AT TENNESSEE CREEK
BRIDGE REPLACEMENT PROJECT**

The project is located in El Dorado County near Coloma, California. The Work to be done is shown on the Plans, described in the Special Provisions and generally consists of, but is not limited to:

Construction of a new replacement bridge over Tennessee Creek; removal of the existing structure; construction of new 6" and 20" waterlines segments; grading and paving for the new bridge approaches, realignment and widening of Green Valley Road; improvements and signalization of the intersection of Green Valley Road and North Shingle Road; and other work as specified in the Contract Plans.

Article 2. CONTRACT DOCUMENTS

The Contract Documents consist of: the Notice to Bidders; the bid forms which include the accepted Proposal, Bid Price Schedule and Total Bid, Subcontractors Listing, UDBE Information, Equal Employment Opportunity Certification, Section 10285.1 Statement, Section 10162 Questionnaire, Section 10232 Statement, Noncollusion Affidavit, Debarment, Suspension, Ineligibility, and Voluntary Exclusion Certification, Non-lobbying Certification for Federal-Aid Contracts, Disclosure of Lobbying Activities (Standard Form LLL), Form FHWA 1273; the Contract which includes this Agreement with all Exhibits thereto, the Performance Bond, and Payment Bond, the LOCAL AGENCY BIDDER – DBE INFORMATION form; the drawings listed and identified as the Project Plans; the Special Provisions which incorporate by reference the Caltrans Standard Plans, dated May 2006, and Standard Specifications, dated May 2006, Amendments to the May 2006 Standard Specifications, and standard drawings from the Design and Improvement Standards Manual of the County of El Dorado, revised March 8, 1994 including Resolution 199-91 and Resolution 58-94 to adopt changes to the Design and Improvement Standards Manual; all Addenda incorporated in those documents before their execution, and all Contract Change Orders issued in accordance with the Contract

Documents which may be delivered or issued after the Effective Date of this Agreement and are not attached hereto; the prevailing Labor Surcharge And Equipment Rental Rates (when required) as determined by the Department of Industrial Relations to be in effect on the date the Work is accomplished; all the obligations of County and of Contractor which are fully set forth and described therein; and all Contract Documents which are hereby specifically referred to and by such reference made a part hereof. All Contract Documents are intended to cooperate so that any work called for in one and not mentioned in the other is to be executed the same as if mentioned in all Contract Documents. Contractor agrees to perform all of its promises, covenants, and conditions set forth in the Contract Documents, and to abide by and perform all terms and conditions set forth therein. In case of conflict between this Agreement and any other contract document, this Agreement shall take precedence.

Article 3. COVENANTS AND CONTRACT PRICE

County hereby promises and agrees with said Contractor to employ, and does hereby employ, said Contractor to provide the material and to do the Work according to the terms and conditions of the Contract Documents herein contained and referred to, for the prices hereinafter set forth, and hereby contracts to pay the same at the time, in the manner and upon the conditions herein set forth; and the said parties for themselves, their heirs, executors, administrators, successors and assigns, do hereby agree to the full performance of the covenants herein contained. County shall pay Contractor for the completion of the Work in accordance with the Contract Documents in current funds the Contract Prices named in Contractor's Bid and Bid Price Schedule, a copy of which is attached hereto as Exhibit A.

Article 4. COMMENCEMENT AND COMPLETION

The Work to be performed under this Contract shall commence on the date specified in the Notice to Proceed issued by County, and the Work shall be fully completed within the time specified in the Notice to Proceed pursuant to Section 4 of the Special Provisions.

County and Contractor recognize that time is of the essence of the Agreement and that County will suffer financial loss if the Work is not completed within the time specified in Section 4 of the Special Provisions annexed hereto, plus any extensions thereof allowed in accordance with Section 4 of the Special Provisions. They also recognize the delays, expense, and difficulties involved with proving in a legal proceeding the actual loss suffered by County if the Work is not completed on time. Accordingly, instead of requiring any such proof, County and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay County the sum of **One Thousand dollars (\$1,000.00) per day**, as liquidated damages and not as a penalty, for each and every calendar day's delay in finishing the Work in excess of the contract time prescribed herein.

Attention is directed to "Beginning of Work, Time of Completion and Liquidated Damages", "Order of Work", and "Maintaining Traffic" of these Special Provisions and the Traffic Handling Plans. For Stage 2 work requiring the closure of Green Valley Road and North Shingle Road, the Contractor shall be allowed a maximum of four (4) consecutive calendar days, from 9:00 p.m. Thursday to 5:00 a.m. Tuesday, as described in "Maintaining Traffic" of these special provisions, to complete the work (less the final lift of AC). In the event the Contractor fails to open Green Valley Road and North Shingle Road after the above prescribed four (4) calendar days, the Contractor shall pay to the County of El Dorado the sum of eight thousand eight hundred fifty dollars (\$8,850.00) per calendar day for each and every calendar day's delay. For work on Peaceful Garden Way, the Contractor shall have five (5) consecutive calendar days to close Peaceful Garden Way to complete the work (less the final lift of AC). In the event the Contractor fails to open Peaceful Garden Way to two lane traffic in five (5) consecutive calendar days, the Contractor shall pay to the County of El Dorado the sum of one thousand dollars (\$1,000.00) per calendar day for each and every calendar day's delay.

Article 5. INDEMNITY

To the fullest extent allowed by law, Contractor shall defend, indemnify, and hold County and the State of California and its (their) officers, directors, and employees, and any federal government agencies associated with this Contract harmless against and from any and all claims, suits, losses, damages, and liability for damages, including attorney's

fees and other costs of defense brought for or on account of injuries to or death of any person, including but not limited to, workers and the public, or on account of injuries to or death of County, State or federal government agency employees, or damage to property, or any economic, consequential or special damages which are claimed or which shall in any way arise out of or be connected with Contractor's services, operations or performance hereunder, regardless of the existence or degree of fault or negligence on the part of the County, the State of California, or any federal government agencies, any property owners from whom the County has obtained a construction easement, the Contractor, subcontractors or employees of any of these, except for the active, or sole negligence of the County, the State of California or any federal government agencies its (their) officers and employees, or any property owners from whom the County has obtained a construction easement, or where expressly prescribed by statute.

The duty to indemnify and hold harmless the County, the State and any federal government agencies associated with this Contract specifically includes the duties to defend set forth in Section 2778 of the Civil Code. The insurance obligations of Contractor are separate, independent obligations under the Contract Documents, and the provisions of this defense and indemnity are not intended to modify nor should they be construed as modifying or in any way limiting the insurance obligations set forth in the Contract Documents.

Contractor is required to indemnify and save harmless and defend, including attorneys fees and expenses, El Dorado Irrigation District (EID), its officials, agents, employees, and representatives from and against any and all claims, liability, losses, and/or causes of action which arise or are claimed to arise from the negligence or willful misconduct of the Contractor, its subcontractor(s), or the agents, servants or employees of any of them.

Article 6. GUARANTEES

Contractor shall repair or replace any or all work provided hereunder which is defective due to faulty materials, poor workmanship, or defective equipment at no expense to County, ordinary wear or tear and unusual abuse or neglect excepted, during the term of the Contract and for a period of one (1) year after Contract Acceptance.

Contractor shall be required to repair or replace any and all adjacent facilities or areas which have been damaged or displaced due to Contractor's work performed under this Agreement at no expense to County during the term of this Agreement and for a period of one (1) year after Contract Acceptance.

If a warranty or guarantee exceeding one (1) year is provided by the supplier or manufacturer of any equipment or materials used in this Project, or if a warranty or guarantee exceeding one (1) year is required elsewhere in these Contract Documents, then the guarantee for such equipment or materials shall be extended for such term. Contractor expressly agrees to act as co-guarantor of such equipment and materials, and Contractor shall supply County with all warranty and guaranty documents relative to equipment and materials incorporated in the job and guaranteed by its suppliers or manufacturers.

The parties agree that this guarantee and the rights and obligations accruing therefrom shall be in addition to, and not by way of limitation in any manner whatsoever to, the rights, obligations, warranties or remedies otherwise provided for by law.

In the event of Contractor's failure to comply with the above mentioned conditions within ten (10) calendar days after being notified in writing by County, Contractor hereby authorizes County to proceed to have said defects repaired and made good at Contractor's expense, and Contractor will honor and pay all costs and charges therefore upon written demand.

Article 7. VENUE

Any litigation arising out of this Contract shall be brought in El Dorado County and governed by California law.

Article 8. ASSIGNMENT OF ANTITRUST ACTIONS

In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor offers and agrees and will require all of its subcontractors and suppliers to agree to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to Contractor, without further acknowledgment by the parties.

If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under Government Code Sections 4550-4554, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery. Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under Government Code Sections 4550-4554 if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

Article 9. TERMINATION BY COUNTY FOR CONVENIENCE

County reserves the right to terminate the Contract at any time upon determination by County's representative that termination of the Contract is in the best interest of County. County shall issue Contractor a written notice specifying that the Contract is to be terminated.

Upon receipt of said written notice, Contractor shall stop all work under the Contract except: (1) work specifically directed to be completed prior to termination, (2) work the Inspector deems necessary to secure the project for termination, (3) removal of equipment and plant from the site of the Work, (4) action that is necessary to protect materials from damage, (5) disposal of materials not yet used in the Work as directed by County, and (6) clean up of the site.

If the Contract is terminated for County's convenience as provided herein, all finished or unfinished work and materials previously paid for shall, at the option of County, become its property. Contractor shall be paid an amount which reflects costs incurred for work provided to the date of notification of termination. In addition, Contractor shall be paid the reasonable cost, as solely judged by County, and without profit, for all work performed to secure the project for termination.

Article 10. TERMINATION BY COUNTY FOR CAUSE

If Contractor is adjudged as bankrupt or insolvent, or makes a general assignment for the benefit of its creditors or if a trustee or receiver is appointed for Contractor or for any of its property, or if Contractor files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or on more than one occasion fails to supply sufficient skilled workmen or suitable material or equipment, or on more than one occasion fails to make prompt payments to subcontractors for labor, materials, or equipment, or disregards the authority of the County's representative, or the Engineer, if one is appointed, or violates any of the Contract assurances, nondiscrimination provisions or any other federal or state requirements as identified in Section 2-1.06 of the Special Provisions, or otherwise violates any provision of the Contract Documents, then County may, without prejudice to any other right or remedy and after giving Contractor and its Surety a minimum of ten (10) days from delivery of a written termination notice, terminate the services of Contractor and take equipment and machinery thereon owned by Contractor and finish the Work by whatever method County may deem expedient. In such case, Contractor shall not be entitled to receive any further payment until the Work is finished.

Without prejudice to other rights or remedies County may have, if Contractor fails to begin delivery of materials and equipment, to commence Work within the time specified, to maintain the rate of delivery of material, to execute the

Work in the manner and at such locations as specified, or fails to maintain a work program which will ensure County's interest, or, if Contractor is not carrying out the intent of the Contract, an Inspector's written notice may be served upon Contractor and the Surety on its faithful performance bond demanding satisfactory compliance with the Contract. If Contractor or its Surety does not comply with such notice within five (5) days after receiving it, or after starting to comply, fails to continue, County may exclude it from the premises and take possession of all material and equipment, and complete the Work by County's own forces, by letting the unfinished Work to another Contractor, or by a combination of such methods.

Where Contractor's services have been so terminated by County, said termination shall not affect any right of County against Contractor then existing or which may thereafter accrue. Any retention or payment of monies by County due Contractor will not release Contractor from compliance with the Contract Documents.

If the unpaid balance of the Contract price exceeds the direct and indirect costs of completing the Work, including compensation for additional professional services, such excess shall be paid to Contractor. If the sums under the Contract are insufficient for completion, Contractor or Surety shall pay to County within five (5) days after the completion, all costs in excess of the Contract price. In any event, the cost of completing the Work shall be charged against Contractor and its Surety and may be deducted from any money due or becoming due from County.

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

The provisions of this Article shall be in addition to all other rights and remedies available to County under law.

If after notice of termination, it is determined for any reason that Contractor was not in default, the rights and obligations of the parties shall be the same as if the notice of termination had not been issued. The Contract shall be equitably adjusted to compensate for such termination.

Article 11. WORKERS' COMPENSATION CERTIFICATION

Contractor shall comply with Labor Code Sections 3700 et seq., requiring it to obtain Workers' Compensation Insurance, and sign a certificate of knowledge thereof.

CERTIFICATE OF KNOWLEDGE - LABOR CODE SECTION 3700

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

Signed: _____ Date _____

Article 12. WARRANTY

Contractor warrants to County that materials and equipment furnished for the Work will be of good quality and new, unless otherwise required or permitted under the Contract Documents, that the Work will be free from defects or flaws and is of the highest quality of workmanship and that the Work will conform with the requirements herein. Work not conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective.

Article 13. RETAINAGE

The retainage from payment is set forth in Section "PAYMENT OF WITHHELD FUNDS" of the Special Provisions. Contractor may elect to receive one hundred percent (100%) of payments due as set forth in the Contract Documents, without retention, by depositing securities of equivalent value with County, in accordance with, and as set forth in Section 22300 of the Public Contract Code. Securities eligible for deposit hereunder shall be limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.

Article 14. DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM

Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy, as County deems appropriate. Contractor shall include this assurance in every subcontract entered into as a result of this Agreement.

Article 15. PROMPT PAYMENT OF SUBCONTRACTORS

Prompt Progress Payment to Subcontractors

A prime Contractor or subcontractor shall pay to any subcontractor not later than ten (10) days of receipt of each progress payment, in accordance with the provision in Section 7108.5 of the California Business and Professions Code concerning prompt payment to subcontractors. The ten day period is applicable unless a longer period is agreed to in writing. Any delay or postponement of payment over thirty (30) days may take place only for good cause and with County's prior written approval. Any violation of Section 7108.5 shall subject the violating contractor or subcontractor to the penalties, sanctions and other remedies of that Section. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to the Contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the Contractor, deficient subcontractor performance, and/or noncompliance by a subcontractor.

Prompt Payment of Withheld Funds to Subcontractors

County shall hold retainage from the prime Contractor and shall make prompt and regular incremental acceptances of portions, as determined by the Department of the contract work and pay retainage to the prime Contractor based on these acceptances. The prime Contractor or subcontractor shall return all monies withheld in retention from the subcontractor within thirty (30) days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the contract work by County. Any delay or postponement of payment may take place only for good cause and with County's prior written approval. Any violation of these provisions shall subject the violating Contractor or subcontractor to the penalties, sanctions, and remedies specified in Section 7108.5 of the California Business and Professions Code. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to Contractor or subcontractor in the event of a dispute involving late payment or nonpayment by Contractor, deficient subcontract or performance, and/or noncompliance by a subcontractor.

Article 16. PREVAILING WAGE REQUIREMENTS

In accordance with the provisions of California Labor Code Sections 1770 et seq., including but not limited to Sections 1773, 1773.1, 1773.2, 1773.6, and 1773.7, the general prevailing rate of wages in the county in which the Work is to be done has been determined by the Director of the California Department of Industrial Relations. These wage rates appear in the California Department of Transportation publication entitled General Prevailing Wage Rates.

Interested parties can obtain the current wage information by submitting requests to the Department of Industrial Relations, Division of Labor Statistics and Research, PO Box 420603, San Francisco CA 94142-0603, Telephone

(415) 703-4708 or by referring to the website at <http://www.dir.ca.gov/dlsr/PWD>. The rates at the time of the bid advertisement date of a project will remain in effect for the life of the project in accordance with the California Code of Regulations, as modified and effective January 27, 1997.

Copies of the general prevailing rate of wages in the County in which the Work is to be done are also on file at the Department of Transportation's principal office, and are available upon request, and in case of projects involving federal funds, federal wage requirements have been included in the Contract Documents.

In accordance with the provisions of Labor Code Section 1810, eight (8) hours of labor shall constitute a legal day's work upon all work done hereunder, and Contractor and any subcontractor employed under this Contract shall also conform to and be bound by the provisions of Labor Code Sections 1810 through 1815.

In the case of federally funded projects, where federal and state prevailing wage requirements apply, compliance with both is required. This project is funded in whole or part by federal funds. Contractor's attention is directed to Section 14 of the Special Provisions and the requirements of, and compliance with the Copeland Act (18 U.S.C. 874 and 29 CFR Part 3), the Davis-Bacon Act (40 U.S.C. 276a to 276a-7 and 29 CFR Part 5), and the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330 and 29 CFR Part 5).

If there is a difference between the minimum wage rates predetermined by the Secretary of Labor and the general prevailing wage rates determined by the Director of the California Department of Industrial Relations for similar classifications of labor, Contractor and subcontractors shall pay not less than the higher wage rate. The Department will not accept lower State wage rates not specifically included in the Federal minimum wage determinations. This includes "helper" (or other classifications based on hours of experience) or any other classification not appearing in the Federal wage determinations. Where Federal wage determinations do not contain the State wage rate determination otherwise available for use by Contractor and subcontractors, Contractor and subcontractors shall pay not less than the federal minimum wage rate which most closely approximates the duties of the employees in question.

Article 17. NONDISCRIMINATION

- A. In connection with its performance under this Contract, Contractor shall comply with all applicable nondiscrimination statutes and regulations during the performance of this Contract including, but not limited to the following: Contractor, its employees, subcontractors and representatives shall not unlawfully discriminate against any employee or applicant for employment because of race, color, sex, sexual orientation, religion, ancestry or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave or disability leave. Contractor will take affirmative action to ensure that employees are treated during employment, without regard to their race, color, sex, sexual orientation, religion, ancestry or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave or disability leave. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor shall post in conspicuous places, available to employees for employment, notices to be provided by State setting forth the provisions of this Fair Employment section. Contractor shall, unless exempt, comply with the applicable provisions of the Fair Employment and Housing Act (Government Code, Sections 12900 et seq.) and applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Sections 7285.0 et seq.); the applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12990, set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations incorporated into this Agreement by reference and made a part hereof as if set forth in full; and Title VI of the Civil Rights Act of 1964, as amended. Contractor, its employees, subcontractors and representatives shall give written notice of their obligations under this clause as required by law.
- B. Where applicable, Contractor shall include these nondiscrimination and compliance provisions in any of its subcontracts that affect or are related to the Work performed herein.

- C. The Congress of the United States, the Legislature of the State of California and the Governor of the State of California, each within their respective jurisdictions, have prescribed certain nondiscrimination requirements with respect to contract and other work financed with public funds. Contractor agrees to comply with the requirements of Exhibit B, marked "Fair Employment Practices Addendum" and the requirements of Exhibit C, marked "Nondiscrimination Assurances," including Appendices A through D to Exhibit C, both of which exhibits and all of the Appendices to Exhibit C are incorporated herein and made by reference a part hereof. Contractor further agrees that any agreement entered into by Contractor with a third party for the performance of project-related work shall incorporate Exhibits B and C and Appendices A through D to Exhibit C (with third party's name replacing Contractor) as essential parts of such agreement to be enforced by that third party as verified by Contractor.
- D. Contractor's signature executing this Contract shall provide any certifications necessary under the federal laws and the laws of the State of California, including but not limited to Government Code Section 12990 and Title 2, California Code of Regulations, Section 8103.

Article 18. CONTRACTOR ASSURANCES

By executing this Contract, Contractor certifies that it:

- a. Will abide by all administrative, contractual or legal remedies in instances where Contractor violates or breaches contract terms, and will comply with sanctions and penalties as the Contract Administrator deems appropriate.
- b. Will comply with the termination for cause and termination for convenience provisions of the Contract including the manner by which such termination may be effected and the basis for settlement afforded by those provisions.
- c. Will comply with Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations (41 CFR Chapter 60).
- d. Will comply with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3).
- e. Will comply with the Davis-Bacon Act (40 U.S.C. 276a to 276a-7) as supplemented in Department of Labor regulations (29 CFR part 3).
- f. Will comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor regulations (29 CFR Part 5).
- g. Will comply with County, State of California and FHWA requirements and regulations pertaining to: (a) reporting; (b) patent rights with respect to any discovery or invention which arises or is developed in the course of or under this Contract; and (c) copyrights and rights in data.
- h. Will comply with all applicable standards, orders or requirements issued under Section 306 of the Clean Air Act (42 U.S.C. 1857 [h]), Section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR Part 15).
- i. Will comply with mandatory standards and policies relating to energy efficiency, which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. : 94-163, 89 Stat. 871).
- j. Will comply with: (i) Section 504 of the Rehabilitation Act of 1973 (Rehabilitation Act) which prohibits discrimination on the basis of disability in federally assisted programs; (ii) the Americans with Disabilities

Act (ADA) of 1990 which prohibits discrimination on the basis of disability irrespective of funding; and (iii) all applicable regulations and guidelines issued pursuant to both the Rehabilitation Act and the ADA.

Any subcontract entered into as a result of this Contract shall contain all of the provisions of this Article.

Article 19. BUSINESS LICENSE

The County Business License Ordinance provides that it is unlawful for any person to furnish supplies or services, or transact any kind of business in the unincorporated territory of El Dorado County without possessing a County business license unless exempt under County Ordinance Code Section 5.08.070. Contractor warrants and represents that it shall comply with all of the requirements of the County Business License Ordinance, where applicable, prior to beginning work under this Contract and at all times during the term of this Contract.

Article 20. CONTRACT ADMINISTRATOR

The County Officer or employee with responsibility for administering this Agreement is John Kahling, Supervising Civil Engineer, Department of Transportation, or successor.

Article 21. AUTHORIZED SIGNATURES

The parties hereto represent that the undersigned individuals executing this Agreement on behalf of their respective parties are fully authorized to do so by law or other appropriate instrument and to bind upon said parties the obligations set forth herein.

draft

IN WITNESS WHEREOF, the said Department of Transportation of the County of El Dorado, State of California, has caused this Agreement to be executed by County's Board of Supervisors, on its behalf, and the said Contractor has signed this Agreement the day and year written below.

COUNTY OF EL DORADO

Dated _____

Board of Supervisors
Attest:
Suzanne Allen de Sanchez
Clerk of the Board of Supervisors

Dated _____

Deputy Clerk

CONTRACTOR

Dated _____

By _____
President

License No.

Federal Employer Identification Number

By _____
Corporate Secretary

NOTE: If Contractor is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation; if Contractor is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts on behalf of the co-partnership; and if Contractor is an individual, his/her signature shall be placed above. Contractor executing this document on behalf of a corporation or partnership shall be prepared to demonstrate by resolution, article, or otherwise that it is appropriately authorized to act in these regards. For such corporation or partnership, such authority shall be demonstrated to the satisfaction of County. If signature is by an agent, other than officer of a corporation or a member of a partnership, an appropriate Power of Attorney shall be on file with the Department prior to signing this document.

Mailing Address: _____

Business Address: _____

City, Zip: _____

Phone: _____

Fax: _____

END OF AGREEMENT

EXHIBIT A

**CONTRACTOR'S BID AND BID PRICE SCHEDULE
GREEN VALLEY ROAD AT TENNESSEE CREEK
BRIDGE REPLACEMENT PROJECT**

CONTRACT NO. PW 09-30407 / CIP NO. 77109

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price (In Figures)	Item Total (In Figures)
		Items 1 thru 78: Roadway and Bridge Work				
1	070012	Progress Schedule (Critical Path Method)	LS	1		
2	071325	Temporary Fence (Type ESA)	LF	3791		
3	074016	Construction Site Management	LS	1		
4	074019	Prepare Storm Water Pollution Prevention Plan	LS	1		
5	074020	Prepare Asbestos Dust Mitigation Plan	LS	1		
6	074045	Temporary Creek Diversion System	LS	1		
7	120090	Construction Area Signs	LS	1		
8	120100	Traffic Control System	LS	1		
9	120149	Temporary Pavement Marking (Paint)	SF	562		
10	120159	4" Temporary Traffic Stripe (Paint)	LF	4666		
11	120159	8" Temporary Traffic Stripe (Paint)	LF	290		
12	128650	Portable Changeable Message Sign (Per Sign-Day)	SDAY	1212		
13	129000	Temporary Railing (Type K)	LF	2360		
14	129110	Temporary Crash Cushion System (Elements)	EA	30		
15	150711	Remove Traffic Stripe	LF	95		
16	150742	Remove Roadside Sign	EA	11		
17	152255	Reset Mailbox	LS	1		
18	152390	Relocate Roadside Sign	EA	4		
19	153103	Cold Plane Asphalt Concrete Pavement	SY	320		
20	157550	Bridge Removal (F)	LS	1		
21	160101	Clearing and Grubbing	LS	1		
22	170101	Develop Water Supply	LS	1		
23	190101	Roadway Excavation (F)	CY	9908		
24	190104A	Trench and Excavation Safety	LS	1		
25	190113	Asbestos Compliance Plan	LS	1		
26	190118	Asbestos Containing Material Removal	LS	1		
27	192003	Structure Excavation (Bridge) (F)	CY	471		
28	193003	Structure Backfill (Bridge) (F)	CY	245		
29	194001	Ditch Excavation (F)	CY	145		
30	203001	Erosion Control (Blanket)	SY	2476		
31	203016	Erosion Control (Type D)	SY	2392		
32	204099	Plant Establishment Work	LS	1		
33	260201	Class 2 Aggregate Base	CY	5368		
34	390132	Asphalt Concrete (HMA, Type A)	TON	4112		
35	394073	Place Hot Mix Asphalt Dike (Type A)	LF	1253		

36	394074	Place Hot Mix Asphalt Dike (Type C)	LF	148					
37	394077	Place Hot Mix Asphalt Dike (Type F)	LF	162					
38	394090	Place Hot Mix Asphalt (Miscellaneous Area)	SY	27					
39	490603	24" Cast-In-Drilled-Hole Concrete Piling	LF	722					
40	500001	Prestressing Cast-In-Place Concrete	LS	1					
41	510051	Structural Concrete (Bridge Footing) (F)	CY	94					
42	510053	Structural Concrete (Bridge) (F)	CY	394					
43	510085	Structural Concrete (Approach Slab, Type EQ) (F)	CY	30					
44	511106	Drill and Bond Dowel	LF	37					
45	519088	Joint Seal (MR=1")	LF	124					
46	520102	Bar Reinforcing Steel (Bridge) (F)	LB	62778					
47	520110	Bar Reinforcing Steel (Bridge, Epoxy Coated) (F)	LB	4074					
48	566011	Roadside Sign (1-post)	EA	6					
49	566012	Roadside Sign (2-post)	EA	3					
50	650014	18" Reinforced Concrete Pipe	LF	81					
51	665010	12" Corrugated Steel Pipe (.079" Thick)	LF	34					
52	665018	18" Corrugated Steel Pipe (.109" Thick)	LF	15					
53	691900	Flume Downdrain (Metal)	LF	13					
54	705007	12" Steel Flared End Section	EA	1					
55	705011	18" Steel Flared End Section	EA	1					
56	705204	18" Concrete Flared End Section	EA	2					
57	721009	Rock Slope Protection (Facing, Method B)	CY	652					
58	729010	Rock Slope Protection Fabric	SY	1047					
59	731656	Detectable Warning Surface	SF	18					
60	750501	Miscellaneous Metal (Bridge) (F)	LB	137					
61	80000A	Vinyl Fence (3-Rail)	LF	290					
62	800007	Fence (Type BW, 5 Strand, Metal Post)	LF	646					
63	800051	Fence (Type WM, Metal Post)	LF	229					
64	820107	Delineator (Class 1)	EA	33					
65	832003	Metal Beam Guard Rail (Wood Post)	LF	111					
66	833089	Tubular Bicycle Railing (F)	LF	179					
67	839539	Terminal System (Type SKT)	EA	2					
68	839541	Transition Railing (Type WB)	EA	4					
69	839585	Terminal System (Type FLEAT)	EA	2					
70	839720	Concrete Barrier (Type 732 Modified) (F)	LF	179					
71	840504	4" Thermoplastic Traffic Stripe	LF	13289					
72	840505	6" Thermoplastic Traffic Stripe	LF	2015					
73	840506	8" Thermoplastic Traffic Stripe	LF	510					
74	840519	Thermoplastic Crosswalk and Pavement Marking	SY	1053					
75	850111	Pavement Marker (Retroreflective)	EA	314					
76	860300	Signal and Lighting	LS	1					
77	999990A	Coordination with Property Owners	LS	1					
78	999990	Mobilization	LS	1					

Items 79 thru 84: EID 6" Waterline Work				
79	Mobilization / Demobilization	LS	1	
80	Sheeting, Shoring, and Bracing	LS	1	
81	6" Waterline	LF	565	
82	2" Air Release Valve Assembly	LS	1	
83	Testing and Disinfection	LS	1	
84	6" Waterline Tie-In Connections	LS	1	
Items 85 thru 93: EID 20" Waterline Work				
85	Mobilization / Demobilization	LS	1	
86	Sheeting, Shoring, and Bracing	LS	1	
87	20" Transmission Main	LF	950	
88	20" Butterfly Valve	LS	1	
89	4" Blow-Off Valve Assembly	LS	1	
90	2" Combination Air Valve Assembly	LS	1	
91	Surge Relief Bypass	LS	1	
92	Testing and Disinfection	LS	1	
93	20" Waterline Tie-In Connections	LS	1	

(F) Denotes Final Pay Item

draft

EXHIBIT B

FAIR EMPLOYMENT PRACTICES ADDENDUM

1. In the performance of this Agreement, Contractor will not discriminate against any employee for employment because of race, color, sex, sexual orientation, religion, ancestry or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave or disability leave. Contractor will take affirmative action to ensure that employees are treated during employment, without regard to their race, color, sex, sexual orientation, religion, ancestry or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave or disability leave. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor shall post in conspicuous places, available to employees for employment, notices to be provided by State setting forth the provisions of this Fair Employment section.

2. Contractor and all subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 1290-0 et seq.), and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12900(a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations are incorporated into this Agreement by reference and made a part hereof as if set forth in full. Each of Contractor's contractors and all subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreements, as appropriate.

3. Contractor shall include the nondiscrimination and compliance provisions of this clause in all contracts and subcontracts to perform work under this Agreement.

4. Contractor will permit access to the records of employment, employment advertisements, application forms and other pertinent data and records by County, State, the State Fair Employment and Housing Commission or any other agency of the State of California designated by State, for the purposes of investigation to ascertain compliance with the Fair Employment section of this Agreement.

5. Remedies for Willful Violation:

- (a) County may determine a willful violation of the Fair Employment provision to have occurred upon receipt of a final judgment to that effect from a court in an action to which Contractor was a party, or upon receipt of a written notice from the Fair Employment and Housing Commission that it has investigated and determined that Contractor has violated the Fair Employment Practices Act and had issued an order under Labor Code Section 1426 which has become final or has obtained an injunction under Labor Code Section 1429.
- (b) For willful violation of this Fair Employment provision, County shall have the right to terminate this Agreement either in whole or in part, and any loss or damage sustained by County in securing the goods or services thereunder shall be borne and paid for by Contractor and by the surety under the performance bond, if any, and County may deduct from any moneys due or thereafter may become due to Contractor, the difference between the price named in the Agreement and the actual cost thereof to County to cure Contractor's breach of this Agreement.

EXHIBIT C

NONDISCRIMINATION ASSURANCES

Contractor hereby agrees that, as a condition to receiving any federal financial assistance from County or the State, acting for the U.S. Department of Transportation, it will comply with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d-42 U.S.C. 2000d-4 (hereinafter referred to as the Act), and all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, "Nondiscrimination in Federally-Assisted Programs of the Department of Transportation - Effectuation of Title VI of the Civil Rights Act of 1964" (hereinafter referred to as the Regulations), the Federal-aid Highway Act of 1973, and other pertinent directives, to the end that in accordance with the Act, Regulations, and other pertinent directives, no person in the United States shall, on the grounds of race, color, sex, national origin, religion, age or disability, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which County receives federal financial assistance from the Federal Department of Transportation. Contractor hereby gives assurance that Contractor will promptly take any measures necessary to effectuate this agreement. This assurance is required by subsection 21.7(a) (1) of the Regulations.

More specifically, and without limiting the above general assurance, Contractor hereby gives the following specific assurances with respect to its Federal-aid Program:

1. That Contractor agrees that each "program" and each "facility" as defined in subsections 21.23 (e) and 21.23 (b) of the Regulations, will be (with regard to a "program") conducted, or will be (with regard to a "facility") operated in compliance with all requirements imposed by, or pursuant to, the Regulations.

2. That Contractor shall insert the following notification in all solicitations for bids for work or material subject to the Regulations made in connection with the Federal-aid Program and, in adapted form, in all proposals for negotiated agreements:

Contractor hereby notifies all bidders that it will affirmatively insure that in any agreement entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, national origin, religion, age, or disability in consideration for an award.

3. That Contractor shall insert the clauses of Appendix A of this assurance in every agreement subject to the Act and the Regulations.

4. That the clauses of Appendix B of this Assurance shall be included as a covenant running with the land, in any deed effecting a transfer of real property, structures, or improvements thereon, or interest therein.

5. That where Contractor receives federal financial assistance to construct a facility, or part of a facility, the Assurance shall extend to the entire facility and facilities operated in connection therewith.

6. That where Contractor receives federal financial assistance in the form, or for the acquisition, of real property or an interest in real property, the Assurance shall extend to rights to space on, over, or under such property.

7. That Contractor shall include the appropriate clauses set forth in Appendix C and D of this Assurance, as a covenant running with the land, in any future deeds, leases, permits, licenses, and similar agreements entered into by Contractor with other parties:

Appendix C;

(a) For the subsequent transfer of real property acquired or improved under the Federal-aid Program; and Appendix D;

(b) For the construction or use of or access to space on, over, or under real property acquired, or improved under the Federal-aid Program.

8. That this assurance obligates Contractor for the period during which federal financial assistance is extended to the program, except where the federal financial assistance is to provide, or is in the form of, personal property or real property of interest therein, or structures, or improvements thereon, in which case the assurance obligates Contractor or any transferee for the longer of the following periods:

(a) The period during which the property is used for a purpose for which the federal financial assistance is extended, or for another purpose involving the provision of similar services or benefits; or

(b) The period during which Contractor retains ownership or possession of the property.

9. That Contractor shall provide for such methods of administration for the program as are found by the U.S. Secretary of Transportation, or the official to whom he delegates specific authority, to give reasonable guarantee that Contractor, other recipients, sub-grantees, applicants, sub-applicants, transferees, successors in interest, and other participants of federal financial assistance under such program will comply with all requirements imposed by, or pursuant to, the Act, the Regulations, this Assurance and the Agreement.

10. That Contractor agrees that County, the United States and the State of California have a right to seek judicial enforcement with regard to any matter arising under the Act, the Regulations, and this Assurance.

11. Contractor shall not discriminate on the basis of race, religion, age, disability, color, national origin or sex in the award and performance of any State assisted contract or in the administration of County's DBE Program or the requirements of 49 CFR Part 26. Contractor shall take all necessary and reasonable steps under 49 CFR Part 26 to ensure non discrimination in the award and administration of State assisted contracts. County's DBE Race-Neutral Implementation Agreement is incorporated by reference in this Agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this Agreement. Upon notification to the recipient of its failure to carry out its approved DBE Race-Neutral Implementation Agreement, State may impose sanctions as provided for under 49 CFR Part 26 and may, in appropriate cases, refer the matter for enforcement under 18 USC 1001 and/or the Program Fraud Civil Remedies Act of 1985 (31 USC 3801 et. seq.).

These Assurances are given in consideration of and for the purpose of obtaining any and all federal grants, loans, agreements, property, discounts or other federal financial assistance extended after the date hereof to County by State, acting for the U.S. Department of Transportation, and is binding on Contractor, other recipients, subgrantees, applicants, sub-applicants, transferees, successors in interest and other participants in the Federal-aid Highway Program.

APPENDIX A
to
EXHIBIT C

During the performance of this Agreement, Contractor, for itself, its assignees and successors in interest (hereinafter collectively referred to as "Contractor") agrees as follows:

(1) **Compliance with Regulations:** Contractor shall comply with the regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this Agreement.

(2) **Nondiscrimination:** Contractor, with regard to the work performed by it during the Agreement, shall not discriminate on the grounds of race, color, sex, national origin, religion, age, or disability in the selection and retention of sub-applicants, including procurements of materials and leases of equipment. Contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the Agreement covers a program set forth in Appendix b of the Regulations.

(3) **Solicitations for Sub-agreements, Including procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by Contractor for work performed under a Sub-agreement, including procurements of materials or leases of equipment, each potential sub-applicant or supplier shall be notified by Contractor of the Contractor's obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color or national origin.

(4) **Information and Reports:** Contractor shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to Contractor's books, records, accounts, other sources of information, and its facilities as may be determined by County, State or FHWA to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of Contractor is in the exclusive possession of another who fails or refuses to furnish this information, Contractor shall so certify to County, State or the FHWA as appropriate, and shall set forth what efforts Contractor has made to obtain the information.

(5) **Sanctions for Noncompliance:** In the event of Contractor's noncompliance with the nondiscrimination provisions of this Agreement, County shall impose such agreement sanctions as it, the State or the FHWA may determine to be appropriate, including, but not limited to:

- (a) withholding of payments to Contractor under the Agreement within a reasonable period of time, not to exceed 90 days; and/or
- (b) cancellation, termination or suspension of the Agreement, in whole or in part.

(6) **Incorporation of Provisions:** Contractor shall include the provisions of paragraphs (1) through (6) in every sub-agreement, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

Contractor shall take such action with respect to any sub-agreement or procurement as County, State or FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance, provided, however, that, in the event Contractor becomes involved in, or is threatened with, litigation with a sub-applicant or supplier as a result of such direction, Contractor may request County or State enter into such litigation to protect the interests of County or State, and, in addition, Contractor may request the United States to enter into such litigation to protect the interests of the United States.

**APPENDIX B
to
EXHIBIT C**

The following clauses shall be included in any and all deeds effecting or recording the transfer of Project real property, structures or improvements thereon, or interest therein from the United States.

(GRANTING CLAUSE)

NOW, THEREFORE, the U.S. Department of Transportation, as authorized by law, and upon the condition that County will accept title to the lands and maintain the project constructed thereon, in accordance with Title 23, United States Code, the Regulations for the Administration of federal-aid for Highways and the policies and procedures prescribed by the Federal Highway Administration of the Department of Transportations and, also in accordance with and in compliance with the Regulations pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the County all the right, title, and interest of the U.S. Department of Transportation in, and to, said lands described in Exhibit "A" attached hereto and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto County and its successors forever, subject, however, to the covenant, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and shall be binding on County, its successors and assigns.

County, in consideration of the conveyance of said lands and interests in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns,

(1) that no person shall on the grounds of race, color, sex, national origin, religion, age or disability, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed (;) (and)*

(2) that County shall use the lands and interests in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in federally-assisted programs of the Department of Transportation - Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations may be amended (;) and

(3) that in the event of breach of any of the above-mentioned nondiscrimination conditions, the U.S. Department of Transportation shall have a right to re-enter said lands and facilities on said land, and the above-described land and facilities shall thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation and its assigns as such interest existed prior to this deed.*

* Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to effectuate the purposes of Title VI of the Civil Rights Act of 1964.

APPENDIX C
to
EXHIBIT C

The following clauses shall be included in any and all deeds, licenses, leases, permits, or similar instruments entered into by Contractor, pursuant to the provisions of Assurance 7(a) of Exhibit c.

The grantee (licensee, lessee, permittee, etc., as appropriate) for himself, his heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add "as covenant running with the land") that in the event facilities are constructed, maintained, or otherwise operated on the said property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation program or activity is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.), shall maintain and operate such facilities and services in compliance with all other requirements imposed pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of Secretary, Part 21, Nondiscrimination in federally-assisted programs of the Department of Transportation - Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations may be amended.

(Include in licenses, leases, permits, etc.)*

That in the event of breach of any of the above nondiscrimination covenants, Contractor shall have the right to terminate the (license, lease, permit etc.) and to re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, lease, permit, etc.) had never been made or issued.

(Include in deeds)*

That in the event of breach of any of the above nondiscrimination covenants, Contractor shall have the right to re-enter said land and facilities thereon, and the above-described lands and facilities shall thereupon revert to and vest in and become the absolute property of Contractor and its assigns.

* Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to effectuate the purposes of Title VI of the Civil Rights Act of 1964.

APPENDIX D
to
EXHIBIT C

The following shall be included in all deeds, licenses, leases, permits, or similar agreements entered into by Contractor, pursuant to the provisions of Assurance 7 (b) of Exhibit c.

The grantee (licensee, lessee, permittee, etc., as appropriate) for himself, his personal representatives, successors in interest and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds, and leases add "as a covenant running with the land") that:

- (1) no person on the ground of race, color, sex, national origin, religion, age or disability, shall be excluded from participation in, denied the benefits of, or otherwise subjected to discrimination in the use of said facilities;
- (2) that in the construction of any improvements on, over, or under such land and the furnishing of services thereon, no person on the ground of race, color, sex, national origin, religion, age or disability shall be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination; and
- (3) that the (grantee, licensee, lessee, permittee, etc..) shall use the premises in compliance with the Regulations.

(Include in licenses, leases, permits, etc.)*

That in the event of breach of any of the above nondiscrimination covenants, Contractor shall have the right to terminate the (license, lease, permit, etc.) and to re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, lease, permit, etc.) had never been made or issued.

(Include in deeds)*

That in the event of breach of any of the above nondiscrimination covenants, Contractor shall have the right to re-enter said land and facilities thereon, and the above-described lands and facilities shall thereupon revert to and vest in and become the absolute property of Contractor, and its assigns.

* Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to effectuate the purposes of Title VI of the Civil Rights Act of 1964.

COUNTY OF EL DORADO

PAYMENT BOND

(Section 3247, Civil Code)

Bond No. _____

WHEREAS, the County of El Dorado, a political subdivision of the State of California, hereafter referred to as "Obligee", has awarded to Contractor

_____ hereafter referred to as "Principal", a contract for the work described as follows:

**GREEN VALLEY ROAD AT TENNESSEE CREEK
BRIDGE REPLACEMENT PROJECT
CONTRACT NO. PW 09-30407 / CIP NO. 77109**

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

NOW, THEREFORE, we the undersigned Principal and Surety are held and firmly bound unto the Obligee, in the sum of _____ Dollars, (\$ _____) to be paid to the Obligee, for which payment we bind ourselves, jointly and severally.

THE CONDITION OF THIS OBLIGATION IS SUCH,

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

This bond shall inure to the benefit of any of the persons named in Civil Code Section 3181 as to give a right of action to such persons or their assigns in any suit brought upon this bond.

Dated: _____

Correspondence or Claims relating to this bond should be sent to the Surety at the following address:

PRINCIPAL

SURETY

ATTORNEY-IN-FACT

NOTE: Signatures of those executing for the Principal and for the Surety must be properly acknowledged, and a Power of Attorney attached for the Surety.

NOTARY ACKNOWLEDGMENTS ATTACHED

PRINCIPAL

ACKNOWLEDGMENT

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

SURETY

ACKNOWLEDGMENT

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

_____ ,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

COUNTY OF EL DORADO

PERFORMANCE BOND

Bond No. _____

KNOW ALL MEN BY THESE PRESENTS, that we _____
the Contractor in the Contract hereto annexed, as Principal, and _____
as Surety, are held firmly bound unto the County of El Dorado, a political subdivision of the State of California, hereinafter called the "Obligee" in the
sum of _____ DOLLARS,
(\$ _____) lawful money of the United States, for which payment, well and truly to be made, we bind ourselves, jointly and
severally, firmly by these presents.

Signed, sealed and dated: _____

The condition of the above obligation is such that if said Principal as Contractor in the Contract hereto annexed shall faithfully perform each and
all of the conditions of said Contract to be performed by him, and shall furnish all tools, equipment, apparatus, facilities, transportation, labor
and material, other than material, if any, agreed to be furnished by the Obligee, necessary to perform and complete, and to perform and complete
in a good and workmanlike manner, the work of Contract No. PW 09-30407 / CIP No. 77109 for the Green Valley Road at Tennessee Creek
Bridge Replacement Project in strict conformity with the terms and conditions set forth in the Contract hereto annexed, then this obligation
shall be null and void; otherwise this bond shall remain in full force and effect and the said Surety will complete the Contract work under its own
supervision, by Contract or otherwise, and pay all costs thereof for the balance due under terms of the Contract, and the said Surety, for value
received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be
performed thereunder shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time,
alteration or addition to the terms of the Contract or to the work.

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

This guarantee shall insure the Obligee during the work required by any Contract and for a period of one (1) year from the date of acceptance of
the work against faulty or improper materials or workmanship that may be discovered during that time.

No right of action shall accrue under this bond to or for the use of any person other than the Obligee named herein.

Dated: _____, 20_____.

Correspondence or Claims relating to this bond should be sent
to the Surety at the following address:

PRINCIPAL

SURETY

ATTORNEY-IN-FACT

NOTE: Signatures of those executing for the Principal and the Surety must be properly acknowledged, and a Power of Attorney attached for the
Surety.

NOTARY ACKNOWLEDGMENTS ATTACHED

PRINCIPAL

ACKNOWLEDGMENT

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

SURETY

ACKNOWLEDGMENT

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

_____ ,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

(Because some colored inks will not reproduce in copy machines, please use black ink to complete this Proposal)

COMPLETING BID IN PENCIL, ERASURES, OVERWRITES, AND USE OF CORRECTION FLUID OR TAPE ARE NOT ACCEPTABLE. BID PROPOSALS WITH PENCIL, ERASURES, OVERWRITES, OR USE OF CORRECTION FLUID OR TAPE WILL BE REJECTED. ALL CHANGES MUST BE LINED OUT AND CORRECTIONS INSERTED ADJACENT TO AND INITIALED BY THE BIDDER'S AUTHORIZED REPRESENTATIVE.

PROPOSAL

(to be attached to and submitted with this bound Contract Document bid package)

**TO: THE DEPARTMENT OF TRANSPORTATION,
COUNTY OF EL DORADO,
STATE OF CALIFORNIA**

for the construction of
the

**GREEN VALLEY ROAD AT TENNESSEE CREEK
BRIDGE REPLACEMENT PROJECT
CONTRACT NO. PW 09-30407 / CIP NO. 77109**

NAME OF BIDDER _____

BUSINESS P.O. BOX _____

CITY, STATE, ZIP _____

BUSINESS STREET ADDRESS _____

(Please include even if P.O. Box used)

CITY, STATE, ZIP _____

TELEPHONE NO: AREA CODE () _____

FAX NO: AREA CODE () _____

The work for which this Proposal is submitted is for the construction in accordance with these Contract Documents (including the payment of not less than the State general prevailing wage rates or Federal minimum wage rates set forth herein), the Project Plans described below, including any addenda thereto, the Contract annexed hereto, and also in accordance with the California Department of Transportation Standard Plans, dated May 2006, the Standard Specifications, dated May 2006, Amendments to the May 2006 Standard Specifications, standard drawings from the Design and Improvement Standards Manual of the County of El Dorado, revised March 8, 1994 including Resolutions 199-91 and 58-94 to adopt changes to the Design and Improvement Standards Manual; the Labor Surcharge and Equipment Rental Rates in effect on the date the work is accomplished, and in accordance with the General Prevailing Wage rates. The Project Plans and Contract Documents for the work to be done are entitled:

**GREEN VALLEY ROAD AT TENNESSEE CREEK
BRIDGE REPLACEMENT PROJECT
CONTRACT NO. PW 09-30407 / CIP NO. 77109**

Bids are to be submitted for the entire work. The amount of the bid for comparison purposes will be the total of all the items.

The Bidder shall set forth for each unit basis item of work a unit price and a total for the item, and for each lump sum item a total for the item, all in clearly legible figures in the respective spaces provided for this purpose. In the case of unit basis items, the amount set forth under the "Item Total" column shall be the product of the unit price bid and the estimated quantity for the item.

In case of discrepancy between the item price and the total set forth for a unit basis item, the unit price shall prevail, except as provided in (a) or (b), as follows:

- (a) If the amount set forth as a unit price is unreadable or otherwise unclear, or is omitted, or is the same as the amount as the entry in the item total column, then the amount set forth in the total column for the item shall prevail and shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price;
- (b) (Decimal Errors) If the product of the entered unit price and the estimated quantity is exactly off by a factor of ten, one hundred, etc., or one-tenth, or one-hundredth, etc., from the entered total, the discrepancy will be resolved by using the entered unit price or item total, whichever most closely approximates percentage wise the unit price or item total in the Department's Final Estimate of cost.

If this Proposal is accepted and the undersigned Bidder shall fail to enter into the Contract and furnish the two bonds in the sums required by the State Contract Act, with surety satisfaction to the County of El Dorado and submit escrow bid documents in accordance with the Special Provisions within ten (10) days, not including Saturdays, Sundays, and legal holidays, of the date of the letter notice from the County of El Dorado that the Contract has been awarded, the County of El Dorado may, at its option, determine that the Bidder has abandoned the Contract, and thereupon this Proposal and the acceptance thereof shall be null and void and the forfeiture of such security accompanying this Proposal shall operate and the same shall be the property of the County of El Dorado.

The undersigned, as Bidder, declares under penalty of perjury under the laws of the State of California that the only persons or parties interested in this Proposal, as principals, are those named herein; that this Proposal is made without collusion with any other person, firm, or corporation; that it has carefully examined the location of the proposed work, the annexed proposed form of Contract, and the Plans therein referred to; and that it proposes, and agrees if this Proposal is accepted, that it will contract with the County of El Dorado, in the form of the copy of the Draft Contract annexed hereto, to provide all necessary machinery, tools, apparatus, and other means of construction, and to do all the work and furnish all the materials specified in the Contract, in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that it will take in full payment therefore the following item prices, to wit:

**PROPOSAL PAY ITEMS AND BID PRICE SCHEDULE
GREEN VALLEY ROAD AT TENNESSEE CREEK
BRIDGE REPLACEMENT PROJECT
CONTRACT NO. PW 09-30407 / CIP NO. 77109**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price (In Figures)	Item Total (In Figures)
Items 1 thru 78: Roadway and Bridge Work						
1	070012	Progress Schedule (Critical Path Method)	LS	1		
2	071325	Temporary Fence (Type ESA)	LF	3791		
3	074016	Construction Site Management	LS	1		
4	074019	Prepare Storm Water Pollution Prevention Plan	LS	1		
5	074020	Prepare Asbestos Dust Mitigation Plan	LS	1		
6	074045	Temporary Creek Diversion System	LS	1		
7	120090	Construction Area Signs	LS	1		
8	120100	Traffic Control System	LS	1		
9	120149	Temporary Pavement Marking (Paint)	SF	562		
10	120159	4" Temporary Traffic Stripe (Paint)	LF	4666		
11	120159	8" Temporary Traffic Stripe (Paint)	LF	290		
12	128650	Portable Changeable Message Sign (Per Sign-Day)	SDAY	1212		
13	129000	Temporary Railing (Type K)	LF	2360		
14	129110	Temporary Crash Cushion System (Elements)	EA	30		
15	150711	Remove Traffic Stripe	LF	95		
16	150742	Remove Roadside Sign	EA	11		
17	152255	Reset Mailbox	LS	1		
18	152390	Relocate Roadside Sign	EA	4		
19	153103	Cold Plane Asphalt Concrete Pavement	SY	320		
20	157550	Bridge Removal (F)	LS	1		
21	160101	Clearing and Grubbing	LS	1		
22	170101	Develop Water Supply	LS	1		
23	190101	Roadway Excavation (F)	CY	9908		
24	190104A	Trench and Excavation Safety	LS	1		
25	190113	Asbestos Compliance Plan	LS	1		
26	190118	Asbestos Containing Material Removal	LS	1		
27	192003	Structure Excavation (Bridge) (F)	CY	471		
28	193003	Structure Backfill (Bridge) (F)	CY	245		
29	194001	Ditch Excavation (F)	CY	145		
30	203001	Erosion Control (Blanket)	SY	2476		
31	203016	Erosion Control (Type D)	SY	2392		
32	204099	Plant Establishment Work	LS	1		
33	260201	Class 2 Aggregate Base	CY	5368		
34	390132	Asphalt Concrete (HMA, Type A)	TON	4112		
35	394073	Place Hot Mix Asphalt Dike (Type A)	LF	1253		
36	394074	Place Hot Mix Asphalt Dike (Type C)	LF	148		
37	394077	Place Hot Mix Asphalt Dike (Type F)	LF	162		
38	394090	Place Hot Mix Asphalt (Miscellaneous Area)	SY	27		
39	490603	24" Cast-In-Drilled-Hole Concrete Piling	LF	722		
40	500001	Prestressing Cast-In-Place Concrete	LS	1		
41	510051	Structural Concrete (Bridge Footing) (F)	CY	94		
42	510053	Structural Concrete (Bridge) (F)	CY	394		

43	510085	Structural Concrete (Approach Slab, Type EQ) (F)	CY	30				
44	511106	Drill and Bond Dowel	LF	37				
45	519088	Joint Seal (MR=1")	LF	124				
46	520102	Bar Reinforcing Steel (Bridge) (F)	LB	62778				
47	520110	Bar Reinforcing Steel (Bridge, Epoxy Coated) (F)	LB	4074				
48	566011	Roadside Sign (1-post)	EA	6				
49	566012	Roadside Sign (2-post)	EA	3				
50	650014	18" Reinforced Concrete Pipe	LF	81				
51	665010	12" Corrugated Steel Pipe (.079" Thick)	LF	34				
52	665018	18" Corrugated Steel Pipe (.109" Thick)	LF	15				
53	691900	Flume Downdrain (Metal)	LF	13				
54	705007	12" Steel Flared End Section	EA	1				
55	705011	18" Steel Flared End Section	EA	1				
56	705204	18" Concrete Flared End Section	EA	2				
57	721009	Rock Slope Protection (Facing, Method B)	CY	652				
58	729010	Rock Slope Protection Fabric	SY	1047				
59	731656	Detectable Warning Surface	SF	18				
60	750501	Miscellaneous Metal (Bridge) (F)	LB	137				
61	80000A	Vinyl Fence (3-Rail)	LF	290				
62	800007	Fence (Type BW, 5 Strand, Metal Post)	LF	646				
63	800051	Fence (Type WM, Metal Post)	LF	229				
64	820107	Delineator (Class 1)	EA	33				
65	832003	Metal Beam Guard Rail (Wood Post)	LF	111				
66	833089	Tubular Bicycle Railing (F)	LF	179				
67	839539	Terminal System (Type SKT)	EA	2				
68	839541	Transition Railing (Type WB)	EA	4				
69	839585	Terminal System (Type FLEAT)	EA	2				
70	839720	Concrete Barrier (Type 732 Modified) (F)	LF	179				
71	840504	4" Thermoplastic Traffic Stripe	LF	13289				
72	840505	6" Thermoplastic Traffic Stripe	LF	2015				
73	840506	8" Thermoplastic Traffic Stripe	LF	510				
74	840519	Thermoplastic Crosswalk and Pavement Marking	SY	1053				
75	850111	Pavement Marker (Retroreflective)	EA	314				
76	860300	Signal and Lighting	LS	1				
77	999990A	Coordination with Property Owners	LS	1				
78	999990	Mobilization	LS	1				
		Items 79 thru 84: EID 6" Waterline Work						
79		Mobilization / Demobilization	LS	1				
80		Sheeting, Shoring, and Bracing	LS	1				
81		6" Waterline	LF	565				
82		2" Air Release Valve Assembly	LS	1				
83		Testing and Disinfection	LS	1				
84		6" Waterline Tie-In Connections	LS	1				
		Items 85 thru 93: EID 20" Waterline Work						
85		Mobilization / Demobilization	LS	1				

86	Sheeting, Shoring, and Bracing	LS	1				
87	20" Transmission Main	LF	950				
88	20" Butterfly Valve	LS	1				
89	4" Blow-Off Valve Assembly	LS	1				
90	2" Combination Air Valve Assembly	LS	1				
91	Surge Relief Bypass	LS	1				
92	Testing and Disinfection	LS	1				
93	20" Waterline Tie-In Connections	LS	1				

(F) Denotes Final Pay Item

TOTAL BID

\$

(NOTICE: Bidders failure to execute the questionnaires and statements contained in this proposal as required by applicable laws and regulations, or the determinations by El Dorado County based upon those questionnaires and statements, may prohibit award of the subject Contract to the bidder.)

SUBCONTRACTORS LISTING

The Bidder shall list the name, address, and license number, of each subcontractor to whom the Bidder proposes to subcontract portions of the work, as required by the provisions in "Required Listing of Proposed Subcontractors" of the Special Provisions. The Bidder shall also list the work portion to be performed by each subcontractor by listing the bid item number, bid item description, and portion of the work to be performed by the subcontractor in the form of a percentage calculated by dividing the work to be performed by the subcontractor by the respective bid item amount(s) (not by the total bid price).

Name	Location of Business	License No.	Bid Item Number and Bid Item Description	Percentage of Each Bid Item Subcontracted

*(THE BIDDER'S EXECUTION ON THE SIGNATURE PORTION OF THIS PROPOSAL
SHALL ALSO CONSTITUTE AN ENDORSEMENT AND EXECUTION OF THOSE
CERTIFICATIONS WHICH ARE A PART OF THIS PROPOSAL)*

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

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

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

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

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

Public Contract Code Section 10285.1 Statement

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

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

Public Contract Code Section 10162 Questionnaire

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

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

Yes _____ No _____

If the answer is yes, explain the circumstances in the following space.

Public Contract Code Section 10232 Statement

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

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

NONCOLLUSION AFFIDAVIT

(Title 23 United States Code Section 112 and
Public Contract Code Section 7106)

In conformance with Title 23 United States Code Section 112 and Public Contract Code 7106 the Bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the Bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the Contract of anyone interested in the proposed Contract; that all statements contained in the bid are true; and, further, that the Bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

NOTE:

The above Noncollusion Affidavit is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Noncollusion Affidavit.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

**DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSION
CERTIFICATION, UNITED STATES DEPARTMENT OF TRANSPORTATION(USDOT) 2
CODE OF FEDERAL REGULATIONS (CFR) 1200 FEDERAL AGENCY REGULATIONS
FOR GRANTS AND AGREEMENTS AND EXECUTIVE ORDER 12549**

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

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

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

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

Bidder further agrees by submitting this Proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where any lower tier participant is unable to certify to this statement, it shall attach an explanation to its proposal to the prime contractor.

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

NON-LOBBYING CERTIFICATION FOR FEDERAL-AID CONTRACTS

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- (1) No federal or state appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any federal or state agency, a member of the State Legislature or United States Congress, an officer or employee of the Legislature or Congress, or an employee of a Member of the Legislature or Congress in connection with the awarding of any state or federal contract, including this Contract, the making of any federal grant, the making of any state or federal loan, the entering into of any cooperative contract, and the extension, continuation, renewal, amendment, or modification of any state or federal contract, grant, loan, or cooperative contract.

- (2) If any funds other than federal appropriated funds have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any federal agency, a member of Congress, an officer or employee of Congress or an employee of a member of Congress in connection with this Contract, grant, local, or cooperative contract, the Bidder shall complete and submit Standard Form-LLL, " Disclosure of Lobbying Activities," in accordance with the form instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Bidder also agrees by submitting its bid or Proposal that it shall require that the language of this certification be included in all of its subcontracts which exceed \$100,000 and that all such subcontractors shall certify and disclose accordingly. If the Bidder is awarded this Contract, it shall ensure that all subcontractors submit certifications regarding federal lobbying activities as required by Section 1352, Title 31, United States Code and that all such certifications are made a part of any subcontracts entered into as a result of this Contract.

**INSTRUCTIONS FOR COMPLETION OF SF-LLL,
DISCLOSURE OF LOBBYING ACTIVITIES**

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of covered Federal action or a material change to previous filing pursuant to title 31 U.S.C. Section 1352. The filing of a form is required for such payment or agreement to make payment to lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress an officer or employee of Congress or an employee of a Member of Congress in connection with a covered Federal action. Attach a continuation sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence, the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last, previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District if known. Check the appropriate classification of the reporting entity that designates if it is or expects to be a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the first tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in Item 4 checks "Subawardee" then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organization level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identification in item 1 (e.g., Request for Proposal (RFP) number, Invitation for Bid (IFB) number, grant announcement number, the contract grant. or loan award number, the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitments for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influenced the covered Federal action.
(b) Enter the full names of the individual(s) performing services and include full address if different from 10 (a). Enter Last Name, First Name and Middle Initial (MI).
11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
13. Check the appropriate box(es). Check all boxes that apply. If other, specify nature.
14. Provide a specific and detailed description of the services that the lobbyist has performed or will be expected to perform and the date(s) of any services rendered. Include all preparatory and related activity not just time spent in actual contact with Federal officials. Identify the Federal officer(s) or employee(s) contacted or the officer(s) employee(s) or Member(s) of Congress that were contacted.
15. Check whether or not a continuation sheet(s) is attached.
16. The certifying official shall sign and date the form, print his/her name title and telephone number.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, D.C. 20503.

SF-LLL-Instructions Rev. 06-04-90

Accompanying this proposal is _____
(NOTICE: INSERT THE WORDS "CASH(\$ ___),"CASHIER'S CHECK," "CERTIFIED CHECK," OR "BIDDERS BOND," AS THE CASE MAY BE)

in amount equal to at least ten percent of the total of the bid.

The names of all persons interested in the forgoing Proposal as principals are as follows:

IMPORTANT NOTICE: If the Bidder or other interested person is a corporation, state legal name of corporation and place of incorporation, also names of the president, secretary, treasurer, and executive officer thereof; if a partnership, state name of partnership, also names of all individual partners; if Bidder or other interested person is an individual, state first and last names in full.

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

License No. _____ Classification(s) _____

(A Copy of the afore-referenced license must be attached hereto.)

ADDENDA: This Proposal is submitted with respect to the changes to the Contract included in addenda number (s) _____

(Fill in addenda numbers if addenda have been received and insert, in this Proposal, any Proposal Pay Items and Bid Price Schedules that were received as part of the addenda)

By my signature on this Proposal I certify, under penalty of perjury under the laws of the State of California, that the foregoing questionnaire and statements of Public Contract Code Sections 10162, 10232, and 10285.1 are true and correct and that the Bidder has complied with the requirements of Sections 4104 of the Subletting and Subcontracting Fair Practices Act and of Section 8103 of the Fair Employment and Housing Commission Regulations (Chapter 5 of Division 4 of Title 2 of the California Code of Regulations). By my signature on this Proposal I further certify, under penalty of perjury under the laws of the State of California and the United States of America, that the Noncollusion Affidavit required by Title 23 United States Code, Section 112 and Public Contract Code Section 7106; and the Equal Employment Opportunity Certification; and the Title 49, Code of Federal Regulations, Part 29 Debarment and Suspension Certification; and the Non-lobbying Certification for Federal-Aid Contracts and the Disclosure of Lobbying Activities (Standard Form LLL); are true and correct.

The person or persons executing this Proposal on behalf of a corporation or partnership shall be prepared to demonstrate by resolution, article, or otherwise, that such person is or that such persons are appropriately authorized to act in these regards for such corporation or partnership. Such authority shall be demonstrated to the satisfaction of the County of El Dorado.

If the signature is by an agent other than an officer of a corporation or a member of a partnership, a power of attorney authorizing said act by the agent on behalf of his principal shall be submitted with the bid forms; otherwise, the bid may be disregarded as irregular and unauthorized.

The Bidder's execution on the signature portion of this Proposal shall constitute an endorsement and execution of those affidavits, declarations and certifications which are part of this Proposal.

Executed this _____ day of _____, 2011

at _____ County, State of _____

Date: _____



Name and Title of Bidder _____

Name of Firm _____

END OF PROPOSAL

INSTRUCTIONS - LOCAL AGENCY BIDDER
UDBE COMMITMENT (CONSTRUCTION CONTRACTS)

ALL BIDDERS:

PLEASE NOTE: It is the bidder's responsibility to verify that the UDBE(s) falls into one of the following groups in order to count towards the UDBE contract goal: 1) Black Americans; 2) Asian-Pacific Americans; 3) Native Americans; 4) Women. This information may be submitted with your bid. If it is not, and you are the apparent low bidder or the second or third low bidder, it must be submitted and received as specified in the Special Provisions. Failure to submit the required UDBE commitment will be grounds for finding the bid nonresponsive

A UDBE is a firm meeting the definition of a DBE as specified in 49 CFR and is one of the following groups: Black Americans, Asian-Pacific Americans, Native Americans, or Women.

The form requires specific information regarding the construction contract: Local Agency, Location, Project Description, Total Contract Amount, Bid Date, Bidder's Name, and Contract UDBE Goal.

The form has a column for the Contract Item Number and Item of Work and Description or Services to be Subcontracted or Materials to be provided by UDBEs. Prime contractors shall indicate all work to be performed by UDBEs including, if the prime is a UDBE, work performed by its own forces, if a UDBE. The UDBE shall provide a certification number to the Contractor and expiration date. Enter the UDBE prime's and subcontractors' certification numbers. The form has a column for the Names of UDBE contractors to perform the work (who must be certified on the date bids are opened and include the UDBE address and phone number).

IMPORTANT: Identify **all** UDBE firms participating in the project regardless of tier. Names of the First-Tier UDBE Subcontractors and their respective item(s) of work listed should be consistent, where applicable, with the names and items of work in the "Subcontractors Listing" submitted with your bid.

There is a column for the UDBE participation dollar amount. (If 100% of item is not to be performed or furnished by the UDBE, describe exact portion of item to be performed or furnished by the UDBE.) See Section "Disadvantaged Business Enterprise (DBE)," of the Special Provisions (construction contracts), to determine how to count the participation of UDBE firms. Enter the Total Claimed UDBE Participation dollars and percentage of the total amount bid that these dollars represent.

Exhibit 15-G1 must be signed and dated by the person bidding. Also list a phone number in the space provided and print the name of the person to contact.

UDBE INFORMATION – GOOD FAITH EFFORTS, EXHIBIT 15-H

Federal-Aid Project No. _____ Bid Opening Date _____

The County of El Dorado established an Under-utilized Disadvantaged Business Enterprise (UDBE) goal of 9.29% for this project. The information provided herein shows that a good faith effort was made.

Lowest, second lowest and third lowest bidders shall submit the following information to document adequate good faith efforts. Bidders should submit the following information even if the “Local Agency Bidder – UDBE Commitment” form indicates that the bidder has met the UDBE goal. This will protect the bidder’s eligibility for award of the contract if the administering agency determines that the bidder failed to meet the goal for various reasons, e.g., a UDBE firm was not certified at bid opening, or the bidder made a mathematical error.

Submittal of only the “Local Agency Bidder – UDBE Commitment” form may not provide sufficient documentation to demonstrate that adequate good faith efforts were made.

The following items are listed in the Section entitled “Submission of UDBE Commitment” of the Special Provisions:

- A. The names and dates of each publication in which a request for UDBE participation for this project was placed by the bidder (please attach copies of advertisements or proofs of publication):

Publications	Dates of Advertisement

- B. The names and dates of written notices sent to certified UDBEs soliciting bids for this project and the dates and methods used for following up initial solicitations to determine with certainty whether the UDBEs were interested (please attach copies of solicitations, telephone records, fax confirmations, etc.):

Names of UDBEs Solicited	Date of Initial Solicitation	Follow Up Methods and Dates

- C. The items of work which the bidder made available to UDBE firms, including, where appropriate, any breaking down of the contract work items (including those items normally performed by the bidder with its own forces) into economically feasible units to facilitate UDBE participation. It is the bidder's responsibility to demonstrate that sufficient work to facilitate UDBE participation was made available to UDBE firms.

Items of Work	Bidder Normally Performs Item (Y/N)	Breakdown of Items	Amount (\$)	Percentage Of Contract

- D. The names, addresses and phone numbers of rejected UDBE firms, the reasons for the bidder's rejection of the UDBEs, the firms selected for that work (please attach copies of quotes from the firms involved), and the price difference for each UDBE if the selected firm is not a UDBE:

Names, addresses and phone numbers of rejected UDBEs and the reasons for the bidder's rejection of the UDBEs:

Names, addresses and phone numbers of firms selected for the work above:

- E. Efforts made to assist interested UDBEs in obtaining bonding, lines of credit or insurance, and any technical assistance or information related to the specifications and requirements for the work which was provided to UDBEs:

- F. Efforts made to assist interested UDBEs in obtaining necessary equipment, supplies, materials, or related assistance or services, excluding supplies and equipment the UDBE subcontractor purchases or leases from the prime contractor or its affiliate:

G. The names of agencies, organizations or groups contacted to provide assistance in contacting, recruiting and using UDBE firms (please attach copies of requests to agencies and any responses received, i.e., lists, Internet page download, etc.):

Name of Agency/Organization	Method/Date of Contact	Results
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H. Any additional data to support a demonstration of good faith efforts (use additional sheets if necessary):

NOTE: USE ADDITIONAL SHEETS OF PAPER IF NECESSARY.

COUNTY OF EL DORADO

BIDDER'S BOND

this form MUST be used

KNOW ALL PEOPLE BY THESE PRESENTS, THAT WE _____
_____, as **PRINCIPAL**, and

as Surety are held and firmly bound unto the County of El Dorado, a political subdivision of the State of California (hereinafter referred to as "Obligee"), in the penal sum of **TEN (10) PERCENT OF THE AMOUNT OF THE TOTAL BID PRICE** of the Principal above named, submitted by said Principal to the Obligee for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made to the Obligee, we the Principal and Surety bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents. In no case shall the liability of the Surety hereunder exceed the sum of

TEN PERCENT (10%) OF THE AMOUNT OF THE TOTAL BID PRICE

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT:

WHEREAS, the Principal has submitted the above-mentioned Bid to the Obligee, as aforesaid, for certain construction specifically described as follows, for which bids are to be opened at Placerville, El Dorado County, California, for the construction of the

**GREEN VALLEY ROAD AT TENNESSEE CREEK – BRIDGE REPLACEMENT PROJECT
CONTRACT No. PW 09-30407 / CIP No. 77109**

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

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

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

(seal) _____
Principal

(seal) _____
Surety

Address: _____

(NOTE: Signature of those executing for the Surety shall be properly acknowledged, and accompanied by a Certificate of Acknowledgment.)

SURETY

ACKNOWLEDGMENT

State of California

County of _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____

_____ ,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)